THE LANCET.

LECTURES

ON THE

ANATOMY, PHYSIOLOGY, AND DISEASES OF THE EYE.

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Lecture III.

Physiology of the Eye-ball.

Gentlemen,

The science of optics, which has for its object the investigation of light and colours, and their relation to the organ of vision, is an extensive branch of natural philosophy, and would occupy many lectures if adequately illustrated. I cannot enter at large into a subject of this kind, and shall only make a few remarks respecting the physiology of the eye, confining myself to such topics as are most interesting in reference to disease.

The nature of light has not hitherto been very clearly explained; at least, among those who have devoted great attention to the subject, diversity of opinion still prevails. For our present purpose it will be sufficient to adopt the most generally received notion, that light consists of an extremely subtile matter, emanating in all directions from luminous bodies, or from such as, not being themselves luminous, are illuminated by others, and proceeding in straight lines, to which the term *rays* is technically given.

A ray of light then is to be regarded as a straight line drawn from any luminous, or illuminated body, to the eye of the observer. We make use of the expression "rays of light," and speak of the various affections which these rays of light undergo so familiarly, that we bring ourselves at last to believe that we are designating some material existence which has been clearly demonstrated. Rays of light are to be considered as emanating, in all directions, from any luminous body. Thus a candle placed in the centre of a room fills the whole of the room with light, more or less intense; if we take any portion of the rays proceeding from it they will represent a cone, the apex of which is in the flame of the candle; from this central point the rays diverge, separating from each other more and more widely as they proceed to a greater distance. These lines of light continue to diverge to whatever extent they may proceed; however, the divergency is greater near the luminous body—becomes less and less as the distance increases, and when the source of light is at a very great distance, we are so little sensible of it, that for all practical calculations the rays may be regarded as parallel; hence the distinction of divergent and parallel rays.

The extremely subtile and refined nature of light, that is, of the cause of those phenomena and influences which form the subject of optics, admits so little of the ordinary proofs by which the material nature of any thing is demonstrated, that I cannot give you any clear evidence on this point; yet some of the affections, which light exhibits, bear a strong analogy to what we observe in the grosser forms of matter. Its reflection is one of these. A light falling on bodies freely permeates some, and these are called transparent. Others, on the contrary, do not admit it to pass through them, but reflect it, and these are called opaque. The light is reflected, or it rebounds from the surface of these opaque substances, and though the comparison may not be scientifically accurate, the occurrence is similar to the rebounding of a ball from a wall. The light strikes against an opaque body; the rays rebound and come back again from the body on which they fell. One of the most familiar instances of the reflection of light is that of a common mirror; the metallic coating behind the glass reflects the rays of light which come back to the eyes of an individual standing before it, and represent his image as if it were behind the glass.

Another phenomenon exhibited by light is that called refraction, which literally means *breaking*. The rays, under certain circumstances, instead of proceeding in straight lines, are turned aside, and thus, as it were, broken or interrupted. This takes place whenever they pass from one medium into another of different density. If they travel on in one and the same medium, they invariably pursue a straight course through whatever extent of space they may be transmitted to the eye of the observer. But there are many media, which, though they agree in the circumstance of being transparent, differ very much in their density; for instance, air, water, and glass. When the light passes from a rarer into a denser medium, it deviates from its straight course, and is drawn towards the perpendicular, or towards a straight line drawn through the two media at right angles to their line of contact. On the other hand, if the ray passes out of a denser into a rarer medium, it is turned away from the perpendicular. A familiar instance of this separation of light is afforded by the appearance which a straight stick exhibits, when one half of its length is immersed in water; it appears bent, or broken, at the surface of the water, for the immersed portion is seen through the medium of refracted light, the rays which, on entering the air, have been drawn away from the perpendicular, making the object appear more elevated than it really is, and causing us to see it in a wrong position, while the portion in the air is seen by direct rays, and therefore in its true position.

It may be stated, generally, that the deviation of light from its straight course is greater in proportion to the density of the medium into which it passes; water refracts more powerfully than air, glass more than water, and the diamond more than glass; but, in the case of the diamond, the influence of another principle is observed, viz. the more inflammable the nature of the body, the greater its refraction. Many familiar experiments may be made to illustrate the phenomenon of refraction; one of the most common is that of putting a piece of coin in a basin, on the ground, and retiring to such a distance that the margin of the basin may intercept the direct view of the coin; if the basin be then filled with water, the refraction which the rays of light, proceeding from the coin, undergo in passing from the water into the air, will bring the coin, which was before invisible, into view again; you see it by refracted light, and consequently not in its true situation, the effect being exactly the same as in the case of the stick. Light coming to the earth from the heavenly bodies is refracted by the terrestrial atmosphere, and increases the apparent latitudes of all these bodies. From this cause we see the sun before it has risen above and after it has sunk below the horizon; thus the day is lengthened and the night shortened, and the phenomenon of twilight is produced.

When the rays of light fall on a dense transparent body of a convex surface, the effect of the refraction which they experience will be to collect and unite them together into one point, at a certain distance behind the medium, the degree of refraction at each point of the convex surface depending on mathematical rules, calculated from the nature of the curve on which the rays fall. The most familiar instance of this optical law is afforded by a convex glass. As there is a close connexion between light and heat, when luminous rays are brought together, considerable heat is produced, sufficient, if the sun's rays be received upon a large convex glass, to burn substances placed at the point of union. Hence arose the first application of the Latin term focus, (fire place,) to this point; the word is now used generally, whether heat be produced or not. A concave glass has the opposite effect; instead of uniting the rays of light, it separates and disperses them; hence, optically speaking, rays of light are said to be collected or dispersed.

In the human eye we meet with a number of transparent parts, which have the effect of collecting together the rays which fall on its surface, and bringing them to a focus, or point of union, on the retina. The eye may, in this point of view, be regarded as an optical instrument, and as the effect of different transparent media on the rays of light may be calculated mathematically, the density and configuration of the media being previously given, we may, in some degree, imitate the composition of the eye artificially, and by putting together substances of a certain density and configuration, produce an instrument which may refract, collect, and unite the rays of light in a focus, and thus correspond, in some degree, to that of the living eye. When I say that the eye is an optical instrument which may be imitated artificially, it is to be understood, of course, that this can only be effected in an imperfect manner. It is true that the human eye is an optical instrument, but it is one so perfectly constructed, that the most profound theory can scarcely appreciate all the wonders which it exhibits,

and the most exquisite art can only arrive at an imperfect imitation of it.

The business of vision is two-fold; consisting, first of the mechanical, or optical action, produced by the transparent media on which the rays of light fall; and secondly, of the impressions on the nerve, and through it on the sensorium, by which the mental perception of external objects is produced. If the transparent media possess a given density and a given configuration, and are situated in certain relations to each other and to the retina, the result will be, that the rays of light falling upon the eye, from any object at a certain distance, will be collected together into a focus on the retina, and upon that part of the retina will be represented a miniature picture of the objects placed before the eye; but, in this representation, the objects are inverted, or upside down.

We can prove, by calculation, that the effects of the transparent media of the eye on the rays of light, would be such as they are in fact found to be; the results of experiment coincide perfectly with the results of calculation, and the proof is easily exhibited, since the phenomena, being purely mechanical, take place in the dead just as perfectly as in the living eye. If you take the eye of an animal recently dead, and dissect away the back parts of the sclerotic and choroid coats, so as to expose, without wounding the retina, and then hold it up at a certain distance from the candle, you will see a miniature representation of the candle on the retina, with the apex of the flame downwards. In demonstrating the anatomy of the eye, I showed you the flame of the candle inverted through the crystalline lens. If you place an eye prepared in the same way in a hole made in a window shutter, you will see an inverted miniature picture of the external objects on the retina.

These are the general effects of the action of the eye, considered as an optical instrument. The rays of light fall in the first instance upon the cornea, which, being a convex body, of greater density than air, exerts a refractive force upon them, drawing them together, so that if they were continued in the same direction and medium, they would meet in a focus at a certain distance behind the retina. All the rays falling upon the cornea do not pass through it; in order to permeate it, they must strike upon the parts within a certain given angle (of about 48 degrees.) Those which fall upon it more obliquely, are reflected from it, and produce that sparkling appearance which characterises the living eye, and which it is necessary to introduce into portraits in order to give them a character of life. The same reflection produces the image which we see behind the cornea, as that of our own countenance, when we are examining the eye, or that of an opposite window, and thus rendered more intense. The light, which has been refracted by the cornea, passes through the pupillary opening, which, however, transmits that only which is near the centre; the lateral rays striking upon the iris, are reflected from it, and hence the peculiar brilliancy of that part. This is so striking in some individuals, that their eyes are literally, not metaphorically sparkling. The degree of brilliancy depends upon the nature of the surface on which the rays strike; and this is very different in different individuals. When the iris is altered by disease, nothing is more striking than its change in this respect; it no longer reflects light, as in its healthy state, and a peculiarly dull and dead expression is thus given to the eye.

The pupil is the opening through which light enters the dark chamber of the eye; it is analogous to the aperture by which light is admitted in the optical instrument called a *camera obscura*; the eye is in fact a dark chamber of the same kind.

The rays of light, after passing through the pupil, strike upon the crystalline lens, where they undergo a powerful refraction; that lens being the principal agent of this process. The light thus refracted is ultimately brought to a focus on the concave surface of the retina. It must be understood that I am speaking of light proceeding from objects placed at a certain distance from the eye, and falling upon it in such a way as to produce distinct vision. The eye is subject, in this respect, to the same laws which are applicable to all optical instruments. It can only distinguish objects with accuracy at a certain distance; and though it may perceive more remote objects sufficiently for many purposes, vision beyond a certain limit ceases to be distinct.

I have stated that the chrystalline lens is the principal agent of refraction; consequently when it is lost, as after the operations for cataract, the refractive powers of the eye are greatly weakened, and it is necessary to substitute for the lens which has been removed from the axis of vision by the operation, a glass of considerable convexity even for the most ordinary purposes of vision. It is difficult to appreciate exactly the effect which the crystalline lens produces on the rays of light, in consequence of its peculiar structure, varying in density from the centre to the circumference. Opticians

represent that this peculiarity renders the eye achromatic. Achromatic means colourless; and it is a great object to construct optical instruments, such as telescopes, microscopes, &c. in such a way, that after the various reflections and refractions which the light may undergo, the object may be represented clear, well defined, and uninterrupted by any admixture of prismatic colours. The decomposition of light which leads to this inconvenience, takes place at the surfaces of these glasses, through which it passes. If the lens had been of uniform density throughout, and as firm as its central portion, there must have been a reflection at both its surfaces, rendering the retinal picture indistinct; but, by the softness of its exterior, the density of its surfaces approximates to that of the aqueous and vitreous humours, and it refracts without reflecting or decomposing any of the light which falls on it.

The rays of light, in passing through the crystalline lens, undergo decussation; hence the picture represented on the retina is inverted. This is a mere optical phenomenon, not depending on any vital action, but arising from the mode in which the rays cross each other in their passage through the lens.

The vitreous humour gives passage to the converging rays, without altering them. This structure distends the globe to the requisite magnitude, affords a soft medium in which the retina may be expanded, and keeps that nervous expansion at the proper distance from the lens and other parts of the organ. It has nothing else to do with vision.

The iris can enlarge or contract its pupillary opening, and this regulates the quantity of light admitted into the dark interior of the eye. When the organ is exposed to a weak light, the pupil is enlarged; when to a strong one, it is diminished; so that, in the living eye, if the quantity of light be altered, you will observe corresponding changes in the dimensions of this opening. These alterations are effected by contraction and dilatation of the iris, the motions of which are performed from the ciliary margin, or greater circumference, at a fixed point. Here the iris is closely attached to the ciliary body, the rest of the membrane being loose and moveable. The iris contracts, or is rendered narrower, to dilate the pupil, the pupillary margin being drawn towards the ciliary edge; while the contraction of the aperture is effected by the pupillary margin being carried to a greater distance from the ciliary. These phenomena may be observed by placing a person opposite to a window, and putting your hand between his eye and the light; the iris will contract and dilate according as the light has free access, or is intercepted. If a strong light be suddenly thrown on the eye, the pupil will be very considerably contracted; a painful sensation is at first experienced, and the person feels dazzled; but the pupil immediately contracting, shuts out the offensive quantity of light, and thus moderates the effect of its sudden impulse upon the organ. When the eye, after having been exposed to a strong light, is suddenly submitted to a much weaker, the opposite changes ensue; the pupil dilates, and the effect upon the individual, when he is first introduced into the less degree of light, is almost to blind him for the moment; the pupil, however, gradually dilates, so as to admit the quantity of light necessary to vision in the new situation of the eye.

A question here arises, how these changes take place. They are not produced by the immediate influence of light upon the iris; for if we direct a strong light upon that part, taking care that it shall not enter the pupil, no contraction of the aperture takes place. The iris does not move; the pupil is not altered, unless the retina be influenced.

If, then, the motions of the iris depend on the retina, when the latter becomes insensible to light the pupil ought no longer to exhibit any change from variation in the quantity of light, and any degree of insensibility in the retina ought to be accompanied with a corresponding deficiency of motion in the iris. In general this is the case; but the phenomena of disease present some circumstances which are not reconcileable with this view of the question. In the first place, we must distinguish between the independent motion of the iris, and its associated or sympathetic action. The latter often continues, when the former is at an end. Sometimes the optic nerve is completely insensible in one eye, and light produces no effect whatever upon the iris of the diseased eye, if the sound eye be kept carefully closed; but if you produce motion in the iris of the sound eye, by varying the quantity of light, corresponding motion will be observed in the diseased eye.

Another circumstance is quite irreconcileable with the opinion which regards the action of light upon the retina as necessary to the motions of the iris. In some instances, not merely of partial, but complete amaurosis, the iris not only retains a degree of motion, but occasionally its movements are perfect. In amaurosis caused by hydrocephalus, when the retina is completely insensible, so that the pa-

tient cannot distinguish light from dark, I have not unfrequently seen, and pointed out to pupils in this Infirmary, a perfect state of the motions of the iris. The phenomenon in question is not confined to instances of that description.

These facts throw considerable doubt upon the received notions respecting the physiology of the motions of the iris, and on the usual explanation of that familiar phenomenon, the changes in the dimensions of the pupil.

I will just advert to two other points, which may tend to illustrate the subject we are now considering. If you were asked, what is the condition of the pupil during sleep? you would probably say that it must be dilated, because light is excluded, and the organ is in a quiescent state. However, it is contracted, and greatly contracted, of which you may easily convince yourselves, by examining the pupil of a sleeping infant. By gently elevating the upper eye-lid, you may examine the eye, and ascertain the state of the pupil, without waking the child. You will be surprised to find, that in this quiescent state of the organ, accompanying the repose of the external senses and of the sensorium, and the general relaxation of the voluntary muscles, the pupil is greatly contracted. The other circumstance is the state of the pupil, when the nerves which supply it are paralysed. Under these circumstances it is largely dilated, contrary, probably, to what you would infer from its contracted state during sleep. I have lately seen two cases in which there was a paralysis of all the parts supplied by the nerves of the third pair, viz. three of the recti muscles, one of the obliqui, and the levator palpebræ superioris, so that the upper eye-lid could not be elevated, and the globe was drawn outwards by the external straight muscle. In both instances the pupil was largely dilated. You may, perhaps, suspect that the optic nerve may have been insensible; but this was not the case, for in one of these instances, when the patient looked through a minute opening in a card, producing what may be called an artificial contracted pupil, vision was perfect. I mention these facts, because they may assist in the investigation of the subject, for further inquiry is undoubtedly necessary. If a perfect state of motion can subsist in the iris when the retina is completely insensible, the changes of the pupil cannot be referred to the effect of light upon the optic nerve. To what, then, it may be asked, are we to refer them? How are they to be explained? I confess that I cannot explain them.

Another inquiry has been made respecting the structure and motions of the iris—whether they are muscular or not. This question is, in a great measure, a verbal one, and the answer will depend on the notions we affix to the expressions *muscularity* and *muscular motion*. In external appearance, and on the first view, the iris is obviously unlike any ordinary muscle, whether of the voluntary or involuntary kind, though it presents an obvious fibrous arrangement, both in its anterior and posterior surfaces. On the former or coloured surface, there are evident fibres or striæ, of a radiated disposition, converging towards the pupil. We observe in this anterior surface an evident division into two parts—an outer or larger, an inner or smaller circle; these are generally different in colour, the inner being usually the darkest, and not unfrequently of a different tint. The external circle exhibits an arrangement of radiated fibres, which, arriving at the inner circle, divide into branches uniting together laterally, so as to form an undulated line of division between the two circles: from this line numerous straight and delicate parallel fibres proceed to the pupillary margin. When the dark pigment has been washed off the uvea, it has a whitish or greyish colour, and the surface is composed of straight fibres, converging from the ciliary to the pupillary margin, quite unlike those in the anterior surface. The iris resembles muscular organs in its great vascularity, and copious supply of nerves. The latter, from twelve to twenty in number, of the size of sewing-threads, come from the lenticular ganglion, and run between the sclerotic and choroid coats, where we meet with them, on cutting round the former, distinguished by the contrast of their whiteness with the dark ground of the choroid. The muscularity of the iris has certainly not yet been established by direct anatomical investigation, although much pains have been bestowed on the inquiry, and the aid of magnifying powers has been employed. Indeed, from the delicacy and minuteness of the parts, the subject is a difficult one; and, as the question turns on minute circumstances of colour, arrangement, and size, the observer easily succeeds in seeing that which his previous opinions lead him to wish. Thus, while many can find in the iris nothing but an intertexture of blood-vessels, others feel quite certain that the anterior fibrous arrangement is a radiated muscle, the contractions of which contract the iris and enlarge the pupil; and they are equally positive that the posterior surface of the organ has a circular or sphincter muscle, which antagonises the former. The iris does not contract, like

other muscles, from the application of galvanism, or of mechanical or chemical stimuli after apparent death. If light be its appropriate living stimulus, it causes elongation of the fibres, not contraction, as in the case of other muscles.

The size of the pupil varies in some degree according to the distance of the object. It dilates when the eye is directed to a remote object, in order to admit a greater quantity of light, which reaches the organ in a less intense state, and it contracts when directed to a near object, as the light then comes in a more powerful form. These alterations, however, according to distance, are irregular and limited, and by no means adequate to account for the adjustment of the eye to different distances. The quantity of light influences these changes, as well as the distance; for if the body, although extremely remote, be very powerfully luminous, the pupil contracts, as in looking at the sun. Distinct vision requires, not only perfectly pellucid humours, and a clear picture of the object on the retina, but also that the interior of the eye should form a perfectly dark chamber, to absorb all the light except that which contributes to form the image on the retina. Hence the dark colour of the choroid, ciliary processes, and uvea: hence, in man, where the whole of these are coloured by the dark pigment, vision requires much light, and he sees badly in the dark. Animals, on the contrary, have part of the internal surface of the choroid (the tapetum) light, and capable of reflecting the luminous rays. Those rays, which the dark human choroid absorbs, are reflected by the tapetum of the animal, and again strike the retina, thus producing a greater impression with less light, a circumstance of great importance to those which feed and pursue their prey by night. The herbivorous tribes, in many cases, go on feeding in the dark; the carnivora are drowsy and inactive by day, and go out to supply themselves with food at night. The reflection of light, from the tapetum, gives a luminous appearance to the eyes of animals in the dark; the pupil is dilated, and the reflected light is of the same colour as the tapetum. This is a fact of familiar observation in the cat, where the bright yellow of the tapetum renders the phenomenon very conspicuous. In our own species, individuals with light choroids see better in weak light than those in whom the membrane is dark. The light of day is too powerful for the Albino; it dazzles him, and obscures his vision. If he attempts to examine any object in the full glare, he knits and draws down his brows, and keeps his lids almost shut. In twilight, however, he sees very clearly, and has tolerable vision even in the dark. The ferret, which has no pigment, is a kind of subterraneous animal, following its prey under ground; and the rabbit, in which the same deficiency so often occurs, requires, from its habits of life, a similar kind of vision.

The situation of the impression on the retina is at the intersection of the optic axis with that nervous expansion. The optic, or visual axis, is a straight line drawn through the centre of the cornea, pupil, lens, and vitreous humour, and consequently meeting the retina at the centre of the posterior hemisphere of the globe; the light refracted by the cornea and lens will come to a focus at this point. In order to see an object perfectly, it must be so placed that the rays proceeding from it may be collected in this situation. Under other circumstances an imperfect image is formed on the retina, and the further the objects are placed from the direction of the visual axis the greater is this imperfection, until at last vision is not effected. The limits of its exercise around the visual axis correspond with the external boundaries formed by the surrounding parts of the face; the greatest scope is outwards, the next downwards, then inwards, and the most confined range is upwards; thus we have the widest extent of vision in those directions in which the greatest number of objects occur. The retina is much more extensive than the field of vision; indeed a considerable portion of it is so placed, that the light going through the transparent media of the eye could never be brought to a focus on it.

The visual axis strikes the retina externally to the termination of the optic nerve, which is placed considerably nearer to the nasal than to the temporal side of the globe. The entrance of the nerve through the choroid, which appears as a small, round, white spot on the interior of the globe, is called porus opticus, and is said to be insensible; if it be so, we understand why the nerve did not penetrate the tunics in the centre. We certainly should not have supposed, *a priori*, that this part could be destitute of sensibility; for the nervous matter, which is thinly and widely expanded in the retina, is here concentrated into a small spot. Experiments, however, are cited in proof of the fact, and they show, at all events, that there is an insensible spot not far removed from the axis of vision. Some complicated means of bringing the light to bear on the porus opticus of each eye at the same time are detailed in

works on natural philosophy. You may, however, convince yourselves of the fact by a more simple trial. Stretch out your arms at full length, with the thumbs extended and close together; shut one eye (say the left) and keep the other steadfastly fixed on the left thumb; keeping the left hand steady, and the right eye fixed on it, move away the right hand slowly towards the side; the right thumb will be lost for a moment, at a certain distance, and then come into view again.

Nearly, if not exactly in the optic axis, there is a minute opening in the human retina, about the size of a large bristle, with a bright yellow spot and a fold of the membrane. These parts were discovered by Soemmerring, and bear his name; of their connexion with the vision, or their influence on that process, we are entirely ignorant. The structure in question is peculiar among the mammalia, to those in whom, as in man, the two optic axes are parallel, viz. the monkey and lemur tribes; and it was supposed to be confined to these until the recent researches of Dr. Knox* had demonstrated its existence in several reptiles.

Calculations have been made of the size of the retinal picture; that it must be extremely small is obvious. A landscape, of miles in length and breadth, with its hills, woods, rivers, houses, cattle, and all the endless details belonging to these and a thousand other objects, is painted in a membranous space not larger than the finger nail, by means of light let in at an aperture (the pupil) often not larger than a pin's head. No part of the animal economy is more calculated to excite our surprise and admiration than the contemplation of results so multiplied, varied, and important, produced by means so simple and apparently trivial. In the section of a gilt silver wire we can distinguish the gold, when its thickness does not exceed the 110,000,000th part of an inch. How shall we calculate the size of the image on the retina?

Physiologists have been much puzzled by the inverted image on the retina, and have endeavoured to explain how, in spite of this, we see things in their true position. It must be observed, that every thing we see is painted inverted on the retina, and the problem is, to find out how we avoid the error that would apparently be produced from this cause, and see all external objects in their true relation to ourselves. Buffon, Condillac, and others, boldly assert that we actually see them inverted; that they appear at first upside down; that touch corrects the mistake, and that by habit, at last, we see them in their true position. Not a single fact can be adduced in proof of this position; on the contrary, all our observations on infants, on persons born blind and restored to sight, on the newly-hatched bird, and the newly-born calf, foal, lamb, and other animals, clearly prove that, in respect of relative position to themselves, their vision leads them into no error. If we see every thing inverted, and have to depend merely on experience and habit for rectifying so essential an error, the correction could apply only to objects seen repeatedly; but we see new objects just as correctly, in relation to ourselves, as those with which we are most familiar. We judge of situation by the direction in which the luminous rays reach the eye; in obedience to this law, we shall refer the upper and lower end of an object to their real places, although the rays strike on the respectively opposite parts of the retina. On the same principle we often err in the situation, and no length of experience rectifies the error. We see our own image behind the mirror; we see it lengthened, shortened, inverted, according to the form of the mirror; and we see the stick, which we well know to be straight, crooked when it is half immersed in water. The notion of naturally seeing things inverted arises from a partial view of the subjects; as if vision were performed in the orbit; as if the sensorium were just behind the retina. The image on the retina is only one of many conditions belonging to vision. Consider the long course of the nerve in the orbit; its long passage within the skull, and the junction with that of the other side; its complicated connexion with various cerebral parts. The original picture may be modified in many ways that we know nothing of, before the ultimate impression on the sensorium. That a picture on the retina should let into our minds all the boundless extent and diversity of visual perceptions, is indeed unintelligible to us as to the mode of accomplishment; but the communication of a knowledge of true position by an inverted retinal image, is neither more nor less difficult to comprehend than the mental perception produced by impression on the nerves of any other sense.

Philosophers have given a similar solution of single vision with the two pictures, one in each eye. The difficulty here has arisen from our tracing the exact impres-

* An account of the foramen centrale of the retina, as seen in the eyes of certain reptiles.—Transactions of the Wernerian Society.

sion on the nerve, and finding it to be a picture. Is there not just an equal difficulty in single hearing with two ears? single thinking with a double brain? and the tangible perception of a single object with impressions on thousands of cutaneous nerves? Here again philosophers have confidently asserted that we naturally see double; that touch gradually teaches us that objects are single, and habit at last makes us see them so. Here again we have not a shadow of proof to support so strange an assertion, while we collect clear evidence from infants, cataract cases, and young animals, that they naturally see objects from the first single. Here again we find that experience is of no use when an error is really made; in sensorial affections, accompanied with strabismus, in displacement of one globe, or by pushing one eye aside with the finger, double vision is produced, and continues as long as the cause lasts, in spite of our perfect knowledge that the objects thus seen double are really single. Further, we find that in the attentive exercise of vision, when we look at objects, one eye only is employed, although both may be open, and apparently directed towards the object thus examined. A familiar experiment proves this: placing any object (a pencil) between himself and a candle, let a person bring the pencil and flame into a line, with both eyes open; then let him close one eye, if it is the weak eye, the flame and pencil are still seen in a line as before; if it is the strong eye, the flame of the candle seems to move aside, and is now seen out of the line with the pencil. In a considerable majority of instances, the right is the strong eye, or the one used for attentive vision.

LECTURES

ON THE

THEORY AND PRACTICE OF PHYSIC,

By DR. CLUTTERBUCK.

Theatre, General Dispensary, Aldersgate-street.

Lecture III.

Gentlemen,

At my last lecture, I pointed out some of the distinguishing characteristics of life, and I mentioned, as one peculiarity, the *chemical composition*, not as to the *elements*, for these are the same as those of common matter; but the arrangement of them, their proportions, and the laws of their combination, are all different.

The *second* property, which I described as distinguishing *living* from *common* matter, is that peculiar arrangement of parts, called *structure*; easy to be perceived, yet not so easily defined; as far, however, as we can form an idea of it, the structure of living animals may be said to be fibrous and tubular; the tubes, or vessels, as they are termed, carrying fluids, constantly more or less in motion.

The *third* property, which I spoke of, was that of *self-preservation*, or the power of resisting external agents.

Now these properties may be considered as merely *passive*: for living beings are characterised by others, which are comparatively *active*. I may illustrate this by reference to the *seeds* of plants, and the *ova* of animals. These will remain for months, or even years, unchanged, still retaining their vital principle; as is proved, by their being ready to vegetate and grow, when the proper circumstances are applied. Thus, when heat and moisture are applied to seeds, they begin to vegetate; and the same of the eggs of animals, which are equally vivified by the influence of heat.

These more *active* properties I shall now proceed to speak of more particularly.

Of the Fourth Property of Life, viz. Susceptibility of Impression.

Susceptibility of Impression is one of the most wonderful of the properties of life. It is the capability of being influenced, and excited to action, by the application of certain agents or causes. It has been called, also, *irritability* and *excitability*, and may be considered as a simple kind of *feeling*, though unattended with *consciousness*. The only proof we have of the existence of this principle, is the changes which parts undergo, in consequence of certain applications being made to them. This property exists universally in all living beings,—plants, as well as animals,—and in almost every part of them. The parts of animals which are thus susceptible of impression when applications are made to them, are called *irritable* parts. Almost all parts are *irritable*, either entire, or in their component parts. Thus, though bones, cartilages, and tendons, are not observed to have any perceptible motion excited in them by *irritation*, yet the individual parts of which they are composed, as blood-vessels, absorbents, &c., effect important changes in those structures, which are

thus proved to be *irritable*, i. e. susceptible of impression.

The applications or causes which make an impression, and excite emotion, in living beings, are termed *stimuli*, or exciting powers. The impressions thus made, though followed by action, we are not, in general, conscious of. Thus, the food excites the stomach, and the blood the heart and vessels, to perform their respective actions, without our being at all sensible or conscious of such impressions being made. In the same way, the most important functions, those the most essential to life, are carried on, without our being conscious of the impression being made, or our knowing, by any particular feeling, what is going on in the system.

In the same way, the causes of disease often act upon us insensibly; and we know nothing of their application, till they have produced their effects, as in the case of contagion, &c.

It is upon this principle also, namely, the susceptibility, irritability, or excitability of the body, that medicines generally act, for we seldom feel their first impression, and only become sensible to their more remote effects, as in the case of bark, mercury, arsenic, &c.

This susceptibility of impression, or irritability, is greater or less, according to various circumstances. It is greater in some parts than in others,—as the stomach compared with the skin. The former is open to a number of impressions which the latter is insensible to. Thus ipecacuanha, taken into the stomach, produces an impression of which we are not distinctly conscious, but which is soon followed by violent action, yet the same substance applied to the skin produces no effect. The susceptibility differs with age; it is greater in *young* persons than in *old* ones; so that the same degree of stimulus will produce a greater effect in the former than in the latter. Hence, therefore, in the application of agents to the body, we are not only to take into account the force of the impression, but the degree of susceptibility also.

The susceptibility of impression is different in health and in disease. In some diseases, it is much increased: in others, it is diminished; of the latter, we have instances in brain-affections.

This property is greater in some individuals than in others; this is to be remembered in the administration of medicines. One person requires a double and treble dose of the same substance, to produce the same effect. Unfortunately, we have no certain means of judging of the degree of susceptibility possessed by different bodies. We give medicines to produce certain effects, but we are always doubtful whether these effects will be produced. Sometimes, from a previous knowledge of the individual, we are enabled to judge in some degree, but never without doubt.

Both when in *excess* and when *deficient*, susceptibility of impression predisposes to disease, though of different kinds. When in excess, it disposes to inflammation and spasm; when deficient, it is attended with torpor and inaction, and their consequences.

It is influenced by medicines, and various other things. Thus *narcotics* and *tonics* diminish irritability, while mercury, on the contrary, increases it. *Heat* and *cold* affect it in opposite ways; the former increasing, the latter diminishing it. These effects are seen in the influence of climate, not only on the human body, but on all living beings.

Susceptibility of impression, or irritability, seems even to differ in *kind*, as well as in *degree*, in different beings, and in different parts, owing probably to the difference in structure. Thus applications, such as medicines and poisons, may have no influence on some animals, which, nevertheless, prove destructive to others. Hence also, one part is forcibly impressed by one agent, which another is scarcely at all affected by. Thus *carbonic acid*, which, when inhaled into the lungs, quickly destroys life, by suspending the vital functions, acts, on the contrary, as a *cordial* in the stomach, and invigorates, for a time, the whole system. So it is with different kinds of animals. An agent which on one will act violently may produce no effect upon another. Many things, which operate mildly upon human subjects, produce a contrary effect on animals. For instance, oil of turpentine has no great power of stimulating the human skin; but that the horse is very susceptible of the impression of this agent, and very violent inflammation is quickly produced by it. It is on this account, that in experementing on different animals, we are not to conclude that the same effect will follow on one as on another tribe. Generally speaking, the susceptibility of the horse is much less than that of man; but the fact above mentioned constitutes one of those exceptions which prevent our relying too much on analogy.

We have the same evidence of plants possessing this principle of susceptibility, or irritability, or *simple* feeling, that we have of animals; namely, the *changes* which follow the application of *stimuli* to them; and which, being the result of

movements that are spontaneous, and not mechanical merely, prove, that such applications were, in some way, felt or perceived by them.

Fifth, of the Mobility of Living Beings.

Mobility, or the power of moving spontaneously, independent of mechanical impulse, is another of the most striking and essential properties of life. Motion, in living beings, is termed *action*, as being *spontaneous*, and not passive. As far as can be perceived, motion in living beings is effected by contraction or shortening of fibres; and, therefore, it has been said, "all action is contraction." The kind of motion here alluded to, which is characteristic of life, and therefore belongs to all living beings, is performed involuntarily, and without consciousness. It is termed *involuntary motion*, to distinguish it from another kind of motion performed by animals, and not by plants, and which is called *voluntary motion*. The laws of motion, in animated beings, are quite different from those of inanimate bodies, which are mechanical or chemical merely, or dependant upon some other principle different from that of life.

All parts of the body appear to be capable of motion, either in their entire state, or in their component parts individually. Thus, though an entire bone is incapable of motion, the component parts of the bone, viz. its blood-vessels and absorbents move or act, and changes ensue in consequence.

The *degree* or quantity of motion in living bodies, differs according to the nature and structure of the part, and its relative magnitude. Thus, in the large *voluntary* muscles of the human body, in the heart, and in the intestinal canal, the motion is easily perceived. Whereas, in all the smaller blood vessels, in the absorbents, in the secretory vessels, &c., the motion is quite imperceptible, and only proved to have taken place by the changes which are constantly going on.

Irritability and *mobility* always appear to accompany each other. It could be of no use that a part were capable of feeling an impression, if no change resulted from it; that is, if it were incapable of moving.

Motion in living beings does not appear in any case to be absolutely *spontaneous*, but to be always the result of some exciting cause or *stimulus*. Thus the seeds of a plant, when dry, remain unchanged for months, or even ages, unless moisture and a certain degree of heat are applied to them. These are the *stimuli*, which excite motion or action in the seeds; the result of which motion is *vegetation* or *growth*. So also the egg in animals, continues without alteration for an indefinite length of time, till the stimulus of heat is applied to it, when it begins to move or act, and its parts to be developed into a perfect animal. In both cases, the *seed* and the *egg*, which may be considered analogous beings, retain their living principle, or, in other words, are *alive*; but continue inactive for want of the neces sary *stimulus*. The only object of the vital principle existing in them, is to preserve them for a time unchanged, against the influence of external agents. Hence we conclude, that life may exist in a *passive* state; and that *action* is always the result of some *stimulus*, and consequently is liable to vary, according to the degree and nature of the stimulus applied.

The causes of involuntary motion, (or *stimuli*,) in living beings, are almost infinitely various. Some excite motion in one part but not in others; as light to the *iris*, but not to any other part. Some again seem capable of influencing every part, as *heat* and *electricity*.

Involuntary motion may be excited in animals by *ideas of the mind*; of which an example is afforded in the act of blushing, in the human subject,—in the palpitation of the heart observable in many animals, and in many other cases.

Almost all the motions that are immediately essential to life in animals, equally with the movements that take place in plants, are *involuntary*; as the circulation of the blood, absorption, secretion, digestion, and many others, over which we have no control.

The applications which produce involuntary motions are not in general felt; nor are we conscious of such movements taking place. Thus, as we before stated, we do not feel the impulse of the blood on the heart, nor of the food on the stomach, &c. nor are we conscious of the movements they excite; and so of others. In diseases, however, it may be otherwise; as we often then feel painfully the pulsations of the heart and arteries, or of the action of the stomach or intestinal canal. Thus, also, in fevers, in which the brain is in a diseased state, the throbbing of the arteries in the head is often dreadfully felt.

I shall now mention some of the laws which regulate involuntary motion in living beings.

The degree of motion, or action, taking place in living beings, is in a compound ratio of the force of the stimulus applied,

the susceptibility of the body, and the strength, or power of acting, which it possesses. These are very variable, as is consequently the effect. If the *susceptibility* be natural, and the power of acting, or strength, in the due degree,—then, stimuli applied in the proper degree, produce healthy action. If either the degree of stimulus applied, or the susceptibility is changed, disordered action will be the result. If the disposition, or irritability, be stronger than ordinary, then the effect of stimuli will be heightened. This is observed in what we call *irritable* subjects, and irritable parts; where slight stimuli produce violent movements; as in infants, who are greatly disordered by slight irritations. The reverse occurs where the disposition, *i. e.* the susceptibility or irritability, is deficient; stimuli then produce comparatively little effect, as in old age. This indisposition to act, or the want of irritability, may be *connate*, or it may be the effect of disease. If natural, it is attended with a greater exemption from disease, the subject being less readily influenced by the various causes of disease. And disease, when it arises in such, will be of a less active character. This want of irritability is generally discovered in the action of the heart, which is slow, and of course renders the pulse slow also. Now, when the lungs become diseased in persons who have naturally a slow pulse, the progress of the disease is less rapid, and *vice versa*. The general state of irritability is, however, not always to be judged of by the pulse. Deficient irritability in the general system is sometimes the result of disease or pressure on the brain; in consequence of which the irritability of the heart and intestinal canal, and various other parts, is lessened; and then the action of these organs is diminished.

The degree, or at least the continuance of motion, is according to the *power of acting*, which is not the same thing with the *disposition*. The power of acting in animals, is expressed by the term *strength*. The *disposition* to act, and the *power* to do so, may correspond or otherwise. If the disposition to act, or irritability, and the *power* of acting, or strength, are both considerable, then *stimuli*, or the cause of action, produce a great and durable effect. This occurs in young and vigorous subjects, in whom diseases are readily excited, and when excited are apt to proceed with violence. On the other hand, if these properties are both deficient, then *stimuli* produce but little effect. Such a state of system is often observed in advanced life, where disease is less readily excited, and when excited, is commonly not violent, but long continued. The disposition may be strong, but the power to act weak; in this case, *stimuli* will produce a considerable effect, but it will be of short duration. This is the case with infants, and in subjects called *irritable*; where slight impressions readily excite disease, which may be violent, but commonly soon terminates. Weak persons are also often irritable, and are thereby very prone to disease. The *disposition* to act may be moderate, and the *power* of acting, or strength, at the same time considerable. In this case, the various functions of the body will be carried on steadily and vigorously, and not be easily disturbed by any of the causes of disease. Such a state of things is observed in healthy subjects, at the middle periods of life, when the body is commonly the most exempt from disease.

These differences in the constitution of individuals have great influence in modifying the character of diseases, when they occur; as well as on the liability to them. They answer nearly to the term *temperament*, employed by the ancients to denote certain constitutional peculiarities. We can generally judge pretty accurately of the strength of the stimulus or exciting cause, applied to the body; but we can seldom estimate correctly either the susceptibility of impression, or the power of acting; and, therefore, we are unable to predict the effect that will follow any particular application. Hence, there is great uncertainty, with respect to the action of the causes of disease, and likewise as to the effect of remedies.

There are not only great differences between different individuals, in regard to susceptibility and power of acting, but equal differences exist in the same individual in the different parts of the body. Some parts are more irritable than others, consequently, more readily excited to disease. It may be the lungs, or the brain, or the ligamentous structure; and then the individual becomes more liable to diseases of those particular parts than of others. Such predisposition to certain diseases often pervades whole families, and these diseases are then said to be *hereditary* in such; but it is only the *disposition* to disease that is hereditary, and not the actual disease.

FOREIGN DEPARTMENT.

ANALYSIS OF FOREIGN MEDICAL JOURNALS.

PARIS.

THE variolous epidemic continues to rage at Paris with unabated violence; among those who have fallen victims to small-pox, within the last fortnight, are M. de Lacepède, peer of France, aged 70; and M. Dufour, Advocate of the Royal Court of Paris, in the twenty-fifth year of his age; neither of them had been vaccinated: we annex a report of the adjourned discussion at the Royal Academy of Medicine, on the Report of the Commission on Vaccination. It will be seen from some of the observations made in the course of this discussion, that the French Academy of Medicine has its "hole and-corner advocates" as well as St. Thomas's Hospital. The publicity which has been given to the proceedings of the Academy has been almost immediately followed by a beneficial effect; for there can be no doubt, that it influenced the votes of the Academy, and induced them to adopt the proposition of M. Dupuytren, which, though opposed to the wishes of the Commissioners, is calculated to allay the agitation now prevailing in Paris, by affording the fullest information on the subject.

ROYAL ACADEMY OF MEDICINE.

Sitting of October 4th.

The discussion on the Report of the Commission on Vaccination was resumed. The Minutes of the proceedings at the last Sitting having been read,

M. Moreau observed, that a Report of what passed at the last Sitting of the Academy had found its way into certain journals; he trusted that report had not been furnished by any member of the Academy. It is to be presumed, continued the learned member, that all the members of the academy entertain too high a sense of their own dignity to allow themselves to bring charges against one of their colleagues which are calculated to give the public an unfavourable opinion of him. I have been made to say, that I did not wish to compromise the Academy; but I have never said any thing in my own name; I have always spoken in the name of the Commission on Vaccination. The Commission has not thought the statements which have come to its knowledge, respecting the inefficacy of vaccination, sufficient to justify them in publicly proclaiming that we have been in error for the last twenty years. Surely this degree of discretion might have been exercised without subjecting the members of the Commission to unwarrantable insinuations. They have been charged with a desire to suppress the truth; could such a desire, I will ask, be fairly imputed to the physician of the army of the East, who inoculated himself with the matter of a pestilential bubo, in order to convince the army that the plague was not contagious?—a more beautiful and sublime instance of self-devotion than that of Decius; for a hundred Decii might have been found upon occasion in the army, when only a single Desgenettes was to be found!

M. Moreau was reminded that the only question before the Academy was the adoption of the Minutes.

M. Moreau said, that the attack having been published, he wished his answer to be equally public.

After some further observations, the Minutes were agreed to, and the discussion continued.

M. Guersent said, that in the last sitting the commission had passed too rapidly over the varioloid eruptions, which had occurred in vaccinated subjects. The propagation of vaccination was a duty which devolved upon them, and even if their discussions had not found their way into the public journals, (a measure which, from whatever quarter it emanated, he deemed highly indiscreet and improper,) he thought the state of public opinion demanded from them a candid and positive declaration. He was persuaded, however, that the objections which had hitherto been urged against vaccination, were altogether without weight. During the last 20 years that he had been in practice, he had seen but three or four instances of true small-pox after vaccination, and these were cases not occurring in his own practice, but which he had been invited by colleagues to witness.

M. Marc observed, that the varioloid disease had appeared not merely in vac-

cinated subjects; but in individuals who had had the natural small-pox.

M. Pariset said, the superior board of health had received an account of a varioloid epidemic in the United States, in which it was found that vaccination was a better preservative against the disease than even the small-pox itself.

M. Dupuytren suggested the propriety of calling on the commission of vaccination to make a special report of all the cases of varioloid disease, which they had not been able to include in the general report. He moved that all the members be requested to communicate the facts that have come to their knowledge on this subject, and that the discussion be adjourned.

M. Moreau replied, that the commission was already in possession of facts of this nature; that they had spoken of them in their report, pointing out the general inferences to be deduced from them; that if the academy wished to be made acquainted with the particular details he was ready to read them, but as the new facts could not be inserted in the report for the year 1824, they ought to be reserved for the report of the next year.

M. Dupuytren said, a serious attack had been made upon vaccination, and it would be dangerous to defer, till the next year, explanations which the public expected from the academy. It was only by a special report, containing clear statements, well proved, and luminously brought forward, that the obstinacy of misguided minds could be subdued.

M. Moreau maintained, that the report already contained a discussion of the facts which had come to the knowledge of the commission.

M. Guersent thought a special report necessary to establish a positive distinction between variolous and varioloid diseases, which, in his opinion, was not difficult.

M. Moreau thought, on the contrary, that the distinction was not so obvious as might be imagined. He reminded the academy of the discussion between Petit and Bouvard, on the introduction of inoculation, and that which arose between Jenner and Woodville on the discovery of vaccination. A few months were not too much to be employed in the investigation of so important a question.

M. Dupuytren persisted in moving for an examination of the facts observed in the capital under the eyes of every member of the academy; what he wanted was a report on *French* facts.

M. Husson supported the motion of M. Dupuytren. He observed, that the course formerly adopted by the Committee of Vaccination was, whenever they heard of any persons being attacked by small pox after vaccination, to go to their habitations in order to ascertain the nature of the eruption. By this means, a multitude of errors and false rumours were detected. One day M. Leroy brought a list of twenty vaccinated persons, whom he declared to be labouring under small-pox; he (M. Husson) visited them all in the course of the day, and satisfied himself that there was not a case of true small-pox among them.

M. Deneux made some observations which the noise in the Chamber rendered inaudible. The motion of M. Dupuytren was then put and carried.

SITTING OF OCTOBER 11TH.

Animal Magnetism.

A letter from M. Foissac was read, offering, if the Academy would give its attention to the subject of animal magnetism, to submit to its examination a female somnambulist.

M. Marc thought the Academy ought to entertain this proposition; if animal magnetism were a chimera, they should satisfy themselves that it was so; and if it really existed, it was a fit subject to engage their attention. Hitherto, animal magnetism had been merely a matter of speculation; it was time to put an end to the uncertainty which prevailed.

M. Renauldin could not conceive that the Academy would occupy itself with so ridiculous a subject. Animal magnetism had been buried long ago, and it was useless to attempt to revive it.

M. Double, the President, moved the appointment of a Committee to inquire whether the Academy should occupy itself with the subject of animal magnetism. After a short discussion, the motion was put and carried, and a Committee appointed.

Small Pox—Cauterization of Variolous Pustules.

M. Gasc read some cases on the cauterization of variolous pustules, collected by M. Damiron, from which it appeared that this operation was not so dangerous as some physicians had represented. When it was performed, immediately after the appearance of the eruptions, it produced their absorption, and was not followed by any ill consequences. On the fourth day it was at least useless, for then the pustules took their course under the scar; the cicatrices, however, were not so deep as those produced by confluent small-pox left to itself. It appeared that cicatrization did not prevent the occurrence of encephalitis. Of 37

variolous cases, ten proved fatal; but M Damiron was of opinion, that this result was not to be attributed to the cauterization, but to the malignity of the prevailing epidemic.

M. Adelon read a letter from M. Noble, a physician at Versailles, which was highly favourable to the ectrotic method Thirty patients in the hospital had been cauterized, some with the nitrate of silver in substance, after opening the pustules; others with the solution of the nitrate of silver; some, several days after the eruption had taken place; others the first or second day. They were all cured without any accident, and no scars remained. M. Noble declared, that he would never hesitate to adopt this method on every occasion that presented itself.

M. Louyer Villernay read a letter from a physician at Rennes, stating that during the last twenty years no instance had occurred in that town of any person who had been vaccinated having been attacked by small pox.

M. Marc said, that as one of the objections made to vaccination was that the vaccine virus had lost its efficacy from time, it would be expedient to re-vaccinate persons who had been already vaccinated, at different periods. By comparing the results of these repeated vaccinations, this important question might be determined.

M. Moreau approved of the suggestion of M. Marc, and read a case relative to this subject, which had been furnished by M. Legallois the younger.

M. Legallois, who had been perfectly vaccinated under the inspection of his father caused himself to be inoculated by means of several punctures made on the leg with a lancet armed with variolous virus. These punctures were followed by local action, and some small pimples, which did not take place, when the counter-proof was resorted to, by puncturing the leg on the other side with a lancet dipped in the tincture of cantharides, and other irritating substances. M. Legallois proposed to continue his experiments, if they should appear interesting to the academy.

M. Moreau mentioned that he had attempted to re-vaccinate himself by a puncture made on the left arm. A pimple resulted from it, which at first exhibited the appearance of a true vaccine pimple; but after some days it changed its aspect, and dried up on the eleventh day.

M. Duvilliers read a note on the progressive increase of the small-pox in the 12th arrondissement. No instance had occurred, however, of any vaccinated subject having died of small pox. In several boarding schools where the small pox had raged, it had been ascertained that the patients had not been vaccinated. The doubts which had been recently raised, as to the efficacy of vaccination, had produced the most fatal results, by increasing the prejudices of the less enlightened classes; so that in this single arrondissement it appeared that out of thirty-one deaths, which had occurred since the beginning of October, twenty-seven had been occasioned by small-pox.

M. Laennec said, it might be supposed from the experiment of M. Legallois, that he had had the small-pox after vaccination; but this would be an erroneous inference, for the pimples which followed the punctures did not exhibit the character of variolous pustules; M. Legallois should select for his counter-proof the pus of an abscess resembling as much as possible the variolous fluid.

M. Salmade expressed his conviction that in all the cases furnished by the epidemic, of which so much was said, there would not be found a single instance of a person who had been properly vaccinated being attacked by small-pox. There were some people, however, who were determined to have the small-pox.

M. Sedillon.—I will mention a case which proves how easily a mistake may be made in appreciating the characters of true small-pox. M. Desessartz was called one day to see a young man who had been inoculated by Sutton. After an attentive examination, he pronounced him to be the subject of small-pox. M. Portal was called in, and he made the same declaration. Sutton himself was invited to see the patient; he came, examined him attentively, and then said, "it is the small-pox." The certificate of inoculation, which he had himself given, was then shown to him. "In that case," said he, "it is not the small-pox." M. Anvity was next invited to see the case, and he declared it to be small-pox. To solve the difficulty, the counter-proof was resorted to,—twelve children were inoculated with the purulent matter, and not one of them had the small-pox. After all, therefore, it was not the small-pox. I am fully persuaded, that cases of small-pox, in vaccinated individuals, are extremely rare; during twelve years, not a single case presented itself to me. The first I saw, was that of a young woman twenty five years of age; the small-pox was confluent, but it did not attack the scars of the vaccine pustules, for these scars are never attacked; and all cases where they are said to be attacked, are, for that very reason, suspicious.

Adjourned.—*Gazette de Santé, Oct.* 15.

COLD AFFUSION IN SMALL-POX.

SIR,

Whether the use of cold affusion in small-pox is entirely new, I know not, but, at all events, it can have been very seldom practised. If of sufficient value for THE LANCET, the following hints will obtain a quick and extensive circulation.

Small-pox is now very prevalent in Cheltenham. About a fortnight since, a woman in Sherborne-street, named Somers, requested me to see her child on account of very unfavourable symptoms manifested in the second stage of the disease, about the period of the maturation of the pustules. The fact was, it was a case of very severe regular small-pox, in which the pustules on the face and lower extremities were so close, as in many places, to coalesce. These parts were very much swoln, the soreness of the fauces was very great, and the heat of the skin excessive.

On account of my attendance upon a sick child, belonging to another family, on the first floor, I became a casual observer of this case, from day to day, and, for this reason, was applied to at the period just intimated.

The child, at this time, was labouring under a greater degree of restlessness and irritation than at any former period of the disease; the pustules had acquired the fullest size, but in common with the spaces betwixt them had assumed a bluer and more bloodless hue than at any time previously. The throat was excessively painful, and the developement of heat on the skin, though now at times diminished, was very great.*

I have ever considered Sydenham's observation, that the danger of small-pox, in this pustular stage, is proportioned to the number of pustules, as correct, though the theory by which the effect is explained is a mere humoral imagination. He likens them, in the impressions which they excite, to so many phlegmons or imposthumes. My own opinion is, that the danger or severity of the disease is in the ratio of the number of pustules, and injury done to the cutis, according to the depth to which they penetrate. These effects will be at the height, when the pustules have reached their fullest magnitude and ripeness.

Upon this view of obvious analogies, I recommended the immediate use of the cold affusion with the sponge, and its repeated application, if relief were communicated.

Of course my prescription was amazingly deprecated by the *vielleese* of the neighbourhood, but, luckily, having to deal with an agent in the mother with more medical knowledge than one in five hundred of the different orders of persons in this town, the proposition was immediately acceded to and fulfilled.

The general irritation, heat of surface, and increasing debility, were so immediately alleviated, that the ablution was renewed repeatedly, and the boy is now recovered. After the first time he demanded the reapplication himself several times a day.

The second son, after recovering from an affection of the bowels, followed by one pustule on the nates, similar to vaccinna in all its stages, but probably herpetic (for there is a great general relation betwixt these two,) was seized with fever, quick pulse, and an eruption of shining vesicles, small but thickly seated, on the abdomen. Finding the heat of skin almost burning to the feel, and suspecting that the variolous eruption would follow, I ordered the cold affusion with vinegar and water. This was tried at the time and frequently since with complete relief. Variolous eruptions have appeared in the mild distinct form. The patient is up all day and the ablutions are continued, though he expresses dislike of the chilliness occasioned by them. As the pustules have advanced to maturation, however, he has called for the affusion.

In certain "Medical Transactions," published formerly in London, I once read of the case of a man, who being delirious in severe small pox, after the appearance of the eruptions, jumped into a pond of water, and immediately grew better and recovered.

I shall persist in the practice of cold ablution, with attention to the principles of Dr. Currie*, and even try the sp. tereb. and those remedies which are applied to burns, if there shall be occasion.

Caustic applications have lately been used by the French as a novel practice. It is very long since Dr. Jenner (Essay

* The mother says, that the heat of the surface at the time she applied the vinegar and cold water, conveyed a burning sensation to her touch. An amazing quantity of heat, in this form, is concomitant with the eruptive stage in severe cases of small-pox. In many places the heads of the pustules had been scratched off, and the constant jactitation of the patient evinced how much irritation they had excited.

* I have found it very kindly in hysteria.

on Artificial Eruptions) recommended them.

In your Review of the last Edinburgh Medical and Surgical Journal, Dr. Cumin's paper on the puncture of ganglions was noticed. For the last three years, it has been customary with me to pass Mr. Hey's needle into them. This practice is sometimes attended with success, at others the swelling recurs. Once a local erysipelas occurred subsequently to the insertion of the instrument, but perhaps merely as a coincidence. I found that some surgeons of eminence, of my acquaintance, treat them in this manner. One, I know, who condemns the method, but, as I suppose, without any rational cause.

In Dr. Armstrong's lecture on diabetes, (No. 10, LANCET, vol. viii. p. 289,) that acute pathologist observes that that phenomenon, as it appears to him, does not constitute the primary one, but simply "an ultimate effect of a combined disorder of the skin and mucous membrane of the primæ viæ, and likewise of the liver, all of which invariably precede and attend this curious affection."

In a note, p. 84 of my work on the pathology of the kidneys, I have alluded to the connexion which exists between diseases of the mucous membrane of the bowels and diabetes. How strictly my own opinions have coincided with those of Dr. A. may be shown by the original case with observations, upon which these opinions were founded, entered in my note book August 4, 1822, and *there to be seen and identified with the period stated.* In my adversaria, are many other cases of diabetes mellitus and insipidus, similar in their history. It cannot be regarded by pathologists, however it may be considered by physicians, (for these two are very different,) as any other than a symptom. But for the pressure of matter more closely connected with the principal subject, it would have been published in the Essay where it is referred to.

Morbus Mucosus, in connexion with Diabetes Insipidus.

"Richard Evans, Uley, Gloucestershire, shoemaker, about three years since was affected with jaundice, pain in the right hypochondrium and shoulder, and other symptoms resembling chronic hepatitis. He now passes preternatural quantities of urine, and slimy evacuations from the bowels, mixed with something which, he says, resembles pus. He complains of vertigo when turning the head suddenly, pain in the course of the larger nerves, musc æ volitantes, drowsiness, gastrodynia with putrid eructations, constipation, and symptoms of irritation of the mucous membrane of the bowels after taking food. Legs swoln, emaciation, palpitation of heart."

"Observations.—The symptoms, in this case afford much evidence of the impaired state of the brain and nervous system, and of their powers, which probably preceded the whole of the other symptoms, and might have been owing to constant intemperance during his service in the army. The secondary link in the chain of diseased actions was the state of the mucous membrane and jaundice. The latter, I imagine, must have arisen from collections of mucus in the duodenum and over the common duct. The state of the mucous membrane and the pyrosis may be attributed fairly to a previous disordered condition of the brain and spinal cord. Diabetes is frequently *a sequence of liver affection, and, if independant, seems always to be preceded and accompanied by a morbid condition of the brain and nervous system.* The symptoms described in turning the head, as well as cough in diabetes, are very common."

My opinion of diabetes is, that the excess of urine is not the cause of the patient's emaciation and destruction, but merely an effect concomitant with loss of power of the digestive organs to perform their functions, and of the parts which convey nutrition to the blood to execute their offices. Diminution of the quantity of urine, is *not* the *cause* of improved health, but the *effect* of an *amended state of the membranous viscera, and of the powers of the nervous system.**

The inferred connexion betwixt the nervous system and this disease will be best explained by reference to the opinions contained in my essay. We require, in this disease, more minute examinations of the kidneys, brain, and medulla spinalis. Enlargement of the trunk of the great sympathetic, in it, has been noticed by Dr. John Gordon. (Vide Duncan's Clinical Reports.)

I have the honour to be,
Yours, &c.

JOHN FOSBROKE.

Cheltenham, 18th Sept. 1825.

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* This disease is to be ameliorated, but, as is to be expected from a philosophical view of the causes, generally returns.

ST. GEORGE'S HOSPITAL.

(*Report of the Weekly Board concluded.*)

The next case upon which the "Weekly Board" has undertaken to comment, is that of John Hammond, who died in St. George's Hospital, July 23d, 1825. The facts of this case are briefly these:

John Hammond, a healthy young man, æt. 21, went into St. George's Hospital, June 15th, 1825, with an incised wound, about an inch and a half in length, on the outer side of the knee-joint, which had not penetrated the capsular ligament. A small artery had been divided, and was secured by a ligature; the edges of the wound were brought together by adhesive plaster, and an *eighteen-tail bandage* put on. The next day there was great pain in the limb; but the bandage was not removed, nor was any medicine ordered for the patient.*

Second day (17th June). Severe pain in the joint, extending up the thigh; full pulse, fever, and costive bowels. Nothing ordered.

Third day (18th). Inflammation in the course of the *vastus externus* muscle; considerable swelling above and below the bandage; other symptoms not mitigated. Nothing ordered.

Fourth day (19th). Great tenderness of the thigh, and aggravation of all the symptoms; efflorescence on the skin, and inflammation of the fascia; upon which the surgeon ventured to remove the bandage, and to order the patient a saline mixture.

In a few days from this period, it became obvious that the game was lost; the inflammation terminated in suppuration, matter burrowed under the fascia and extended upwards and downwards; and on the 23d of July the patient died.

Such were the leading facts of this man's case, which being proved by the evidence of several witnesses, the jury returned their verdict, that, "*the deceased died from the effects of a cut in the knee, in consequence of not receiving proper surgical treatment, after he entered the Hospital.*"

This inquest was held on the 25th of July, and the verdict of the Jury, as well as the evidence upon which it was founded, appeared in the Morning Chronicle of the following day; and thus the "Weekly Board" received an "intimation that some *suspicion* existed of the neglect or ill treatment of Hammond," which, until then, they inform us, they had never entertained.

The treatment of Hammond becoming thus notorious, the "Weekly Board directed that a committee should be summoned for the purpose of investigating the circumstances of a case which appeared to reflect so much discredit on the character of the Hospital."

Such is a brief outline of the circumstances which preceded and originated the sittings of the committee on the 29th and 30th of July, at which Mr. Bailey, the master of the deceased, attended. A great mass of evidence was gone into, and most of the charges were substantiated; but the termination of the affair told how well the accused parties had learnt their business, and how nicely they had calculated on the attendance of their friends.

The committee came to the following resolutions; which will show, at the same time, the nature of the charges which they had undertaken to controvert:—

"First.—After a full and mature consideration of the evidence adduced in support of the charges of neglect and inattention on the part of the nurses; and want of proper cleanliness and food; and also of want of due surgical treatment to the deceased, John Hammond; it is the opinion of the Committee that these charges are in no way substantiated; that, on the contrary, every possible attention was afforded to him by the Hospital; and every thing done for his benefit which surgical skill could dictate.

"Secondly.—That this Committee cannot separate without conveying to Mr. Jeffreys their fullest approbation of his conduct during the whole of the period in which he has acted as surgeon to this Hospital; and, in particular, their high

* For the full particulars of this case, and of the evidence upon which this Weekly Board pretend to have founded their report, see THE LANCET, vol. viii. pp. 113, 129, 158, et seq.

sense of the professional skill and humanity which he exhibited towards the deceased, John Hammond.

"Thirdly.—That the Secretary do convey to Mr. Bailey, the best thanks of this Committee, for his conduct during the present investigation; and also for his very liberal donation of one hundred pounds to the building fund of the new hospital, which was stated to be in consideration of the result of this investigation."

Now, in the first place, how can the *opinion* of this Committee be founded upon the evidence?

Mr. Bailey distinctly states,

"I called to see him, and asked him if there had been any artery taken up, but he did not seem to think there had. I inquired how the wound had been dressed when he was first carried to the Hospital? He stated that it had been washed with a sponge and water, a plaster put on and the bandage applied. (The man becoming worse) I then questioned him more particularly about the bandage; he said that it had been applied on *his arrival and had not been removed for three or four days, during the whole of which time he was in great pain, and as soon as it was removed, he instantly experienced great relief. No leeches had been applied. I came to the conclusion, and it is still my opinion, that the inflammation was caused by the application and the continuance of the bandage from the Wednesday to the Saturday*, &c. My own servants brought towels and soap from my own house for the purpose of washing the deceased, finding it neglected by the nurses. Upon (my servants) applying at the Hospital for water, it was refused, because the surgeon had left orders that he must not be washed."

Catherine Ambleton, servant to Mr. Bailey, stated,

When I called (at the Hospital) he said that he had been in very great pain till the bandage was removed, but now that it (the bandage) was gone, he felt quite in heaven. His sheets and linen looked very dirty. In all, I saw him five or six times, and he had at all times a very dirty look; his bed clothes were dirty, he himself was dirty, and all around the bed was dirty.

Mary Astridge, housemaid to Mr. Bailey, stated,

After the deceased had been about a fortnight in the Hospital, I visited him and found him in an extremely dirty state, I called several times afterward, and in my opinion he was certainly much neglected; on one occasion he put out his hands to me and said "see how dirty my arms are." I asked him if I should wash them for him. He said "yes," and accordingly I did so, but the nurse reproved me for it. When I washed him I was not able to find a towel, so I used my pocket-handkerchief. He told me he had not been washed, hands or face, for three days.

Wm. Crump gave similar testimony.

Samuel Ruggles, groom to Mr. Bailey, was examined at the inquest, and gave his evidence as follows: "I visited the deceased every day, he complained for the first four days of great pain. On the fourth day his thigh was swelled above the bandage, which was afterwards loosened. The next morning when I saw him he was much easier. He used to complain of lying uncomfortable and wet. His shirt was changed every week, for a clean one used to be sent by his landlady; *but the sheets always remained the same, till he was removed to the other bed, two or three days before he died. About a fortnight after his admission I helped to take him out of bed, in order that it might be made, and he then told me that it was the first time it had been made since he had been in the Hospital.*

Another witness gave similar testimony.

Thomas Nichols was called in on the part of the Hospital, and stated "that he never spoke to Hammond; that he saw the nurses attend as usual; and that he was fed; saw his sheets were changed as often as any other patient's. Had seen the nurses take soap and water to Hammond *twice in six weeks!!*

Richard Bishop, a patient in the Hospital, had seen no neglect on the part of nurses, but he did not know if Hammond's linen was changed, or if he had been washed; he knew nothing of the linen being changed; his (*Bishop's*) sheets had not been changed for four weeks; had frequently passed Hammond's bed, and saw nothing *particularly* dirty about it; there was a very bad smell, &c.

Two nurses were examined, but being of the accused party, their evidence is inadmissible.

Henry Pitman deposed, that "a great deal of inflammation of the thigh and knee-joint" ensued in about three or four days. He complained of great pain until the bandage was taken off, &c.

If, after reading these extracts from the vidence, the smallest doubt should re-

main, that the Weekly Board has come to a most partial, unjust, and scandalous decision, there exist other proofs which it may be more difficult to dispute, since they are extracted from documents put forth by the worthies themselves.

Mr. Bailey having stated that soon after Hammond was sent to the Hospital he saw enough to convince him of his being neglected, the Weekly Board makes the following remarks:

"It is unfortunate," say they, "that during the long period which elapsed between that and the death of the patient, it did not occur to him, that it would have been but justice to the Hospital, in which his servant was maintained by the benevolence of others, and might have been of advantage to the poor man himself, had he represented this opinion to some of the medical or other officers, or to the Weekly Board."

This effusion is at least a proof of their sagacity, since they have discovered that *any* thing "might have been of advantage to the poor man" who, as they tell us, "had *every possible* attention afforded him; and *every thing* done for his benefit." Having every thing that heart could wish, superfluity could hardly "have been of advantage to the poor man!" But hear Mr. Bailey on this subject, "I determined," says he, "to put into writing his own words, (the patient having complained of neglect and ill-treatment,) but I was unfortunately called from town, and did not return till the Friday, and on the Saturday he died." Had Mr. Bailey not been called from town, his remonstrances could have done but little towards ameliorating the condition of his servant, whose death-warrant was probably issued three or four days after he entered the Hospital.

Who does not observe the venom contained in the following words of this *charitable* junta:—"The hospital in which *his servant was maintained by the benevolence of others*"? Is it possible that men professing to be charitable could have written a sentence betraying so much of malignity?

Tantæne animis cœlestibus iræ?

We are afraid that *true* charity,—"a virtue of the heart, and not of the head,"—is rather scarce at St. George's Hospital. The temple of charity is open to all who need relief. Æthiopian or Scythian, bond or free, it matters not; all are equally partners in her benignity. But the *charitable* institutions of our day are but stepping-stones for avarice, and their Governors too often the panders to ignorance. Charity is degraded into a loathsome, execrable, and sordid passion, that rankles amidst the havoc of its victims. Some of these places are human slaughterhouses,

"——— Mansions where the vulgar run
T' increase their ills, and throng to be undone,"

conducted by crafty, designing, mercenary medical men, whose knowledge of the sciences they profess is not more contemptible than the motives by which their general conduct is governed; and whose success in life is not more to be wondered at than that of the *canting* practitioners in divinity, who live by a similar system of plunder.

But to return to the subject before us. The conductors of St. George's Hospital profess to admit accidents at all times, provided such admission be deemed necessary to the cure of the patient; and, consequently, theirs is, so far at least, an institution for the use of the public; for the use of all those who have met with accidents, whose circumstances may oblige them to seek such relief. Yet this Weekly Board has the effrontery to turn round upon Mr. Bailey, and taunt him with his servant being "maintained by the benevolence of others," &c. We should like to know who the parties are who have concocted this precious docu-

ment, and by whom *they are* maintained; whose food they eat, and whose money makes them feel so independent. S'death, if these Jacks-in-office, from the porters down to Mr. Brodie, do not give themselves more airs than the first noblemen in the land!

The manner in which the Weekly Board disposes of "*the* evidence" makes us desirous of knowing *what* evidence they mean; for either it cannot be the same that we heard on the 29th and 30th of July, and published on the 6th of August, or the Weekly Board have come to a conclusion contrary to that evidence. The Weekly Board says that Mr. Bailey's servants "were only occasional visitors, (one of them went every day, so we are therefore to suppose that the words *daily and occasional* are synonymous terms,) and that their evidence (which proved beyond doubt the filthy condition of Hammond) was contradicted in the most satisfactory and positive manner."

"*First*," says the Board, "By the testimony of the patients who had been in the same ward with Hammond, who stated that they saw his linen frequently changed, that during the last week he had a clean sheet almost daily, (syn. occasionally,) that they frequently saw the nurses washing and cleaning him."

Thomas Nichols had been in the hospital ten weeks; saw Hammond's sheets changed several times (*frequently*, W. B.); he had seen Hammond "washed *twice in six weeks*."

Richard Bishop had been four weeks in the hospital; his sheets had not been changed for four weeks; had frequently passed Hammond's bed, and saw nothing *particularly* dirty about it; (saw that he had a clean sheet almost daily. W. B.) Screens were placed before the bed, (which being *transparent*, I saw "the nurses washing him." W. B.) I knew nothing of the linen being changed; (saw his linen frequently changed. W. B.)

Therefore "every possible attention was afforded the patient." W. Board.

Q. E. D.

"*Secondly*," says this Weekly Board, "The nurses declared, that in the six weeks during which Hammond lived after his admission into the Hospital, the sheet on which he lay was changed (on account of the profuse discharge of matter) as often as fifteen or sixteen times, and the other sheet as often as was necessary."

It is enough to make one sick to find persons, who profess to be respectable, one moment making assertions, and in the next contradicting them.

"When a patient is under the same circumstances with Hammond," says the Weekly Board, "that is, having abscesses, or sores from which there is a profuse discharge, the bed is made up as usual, with a blanket over the mattress, and a sheet over the blanket; but over this bottom sheet is placed a piece of oiled cloth, and between the oiled cloth and the patient, (that is, upon the oiled cloth,) another sheet folded up; the two latter being so situated, as to cover that part of the bottom sheet which is liable to be soiled by the discharge from the abscesses, or in any other ways (e. g. *by the faces?*). *This arrangement makes it unnecessary that the bottom sheet should be changed in the case of such a patient oftener than in others, as it is kept clean by the folded-up sheet and oiled cloth, which are laid over it.*"

Notwithstanding this arrangement of oiled cloths, &c., which rendered it "*unnecessary* that the bottom or lowest sheet should be changed in the case of such a patient (as Hammond) oftener than in others," (i. e. once a month, by the evidence of their own witness, *Richard Bishop*,) the Weekly Board would have us believe, "upon the testimony of the nurses," that, unlike all other patients, poor Hammond was put to the demoniacal torture of having his sheet changed "almost daily"!! In their extreme anxiety, the Weekly Board have got into a dilemma from which nothing can extricate them.

"*Thirdly*," the Weekly Board informs us, "That the matron remembered that

the nurse applied to her very frequently for clean sheets, saying, that a great many were required for the man who had a cut in his knee."

It is no such thing, nor is any thing like it customary in our Hospitals. "Marry, come up!" The matron of a metropolitan hospital we can tell them is no little personage, and of far too much consequence to give much attention either to clean or dirty sheets. The matron of St. George's stated, that "sheets were *given out* twice a-week," which means that the nurse of each ward has sheets given her twice a-week. At other hospitals, once a-week is deemed sufficient, from which we should infer, that there is a scarcity of linen at St. George's. Supposing the assertions of the Weekly Board to be correct, it does not prove that Hammond had the sheets which it is alleged the matron gave out for him, and which the Weekly Board has been at pains to show he did not need.

"*Fourthly*," says the Board, "By the general practice of the Hospital, which is that of allowing a change of sheets to those who are confined altogether to bed, once in a fortnight; to those who are not confined to bed, once in three or four weeks; and as often as may be required to those whose complaints are of such a nature as to cause their linen to be soiled, or rendered otherwise offensive."

"*Fifthly*, By the circumstance of the purulent discharge having been for a considerable time so copious, that without a frequent change of linen, his bed would *have been absolutely intolerable*," (*this arrangement, viz. oiled cloth, &c. made it unnecessary that the bottom or lowest sheet should be changed in the case of such a patient oftener than in others, as it is kept clean, &c. W. B.!!!* What could have induced these people to dabble in ink?) "and would have rendered the whole ward in the highest degree offensive."

With respect to their fourth assertion of cleanliness, it may be observed, that no such "general practice of the Hospital, as that of allowing a change of sheets to those who are confined to their beds, once a fortnight," has been proved. On the contrary, one of their own witnesses stated, that he had been confined to his bed with a fractured leg, and that his sheets were not changed for three weeks, and another who had a sore leg stated, that his sheets had not been changed for four weeks! So much for the absurd and contradictory statements of this Weekly Board. We have allowed them to flounder in the water of their own assertions long enough, and it is now high time to drag them to land. We must, however, remark, that the Weekly Board, after declining to give credence to the evidence of Mr. Bailey's servants, takes one part of it, which relates to the dirty condition of Hammond's *body linen* to be true, and the other, which proves the filthy state of *his sheets* to be false. This might be expected, for ignorance and low cunning are generally bosom companions.

Having already stated our opinions respecting the medical treatment of Hammond, we shall now endeavour to be brief upon that part of the present document which relates to it.

"The last charge," says the Weekly Board, was, "that Hammond had not received proper surgical attention, and this charge was divided under two heads. It was said, that great injury had been done by the application of a tight bandage; and that sufficiently active measures had not been adopted in the beginning for the purpose of preventing or moderating inflammation."

"With respect to the first point," continues this Weekly Board, "it was positively ascertained that no tight bandage had been applied." (This is an infamous falsehood, for their own witnesses, as well as many others, proved that the bandage was tight, and that it caused much uneasiness to the patient.) "There was a wound on one side of the knee, and it was uncertain in the first instance, whether the capsule of the joint had or had not been divided." (So much the worse, then, was their treatment, for if the capsular ligament were wounded, or suspected to be wounded, there is no excuse for their negligence in not having pursued the antiphlogistic treatment.)

"Stripes (strips) of adhesive plaster were applied with a view to approximate the edges of the wound, and procure union by the first intention, and a bandage was employed merely with a view to prevent the displacement of the *stripes* of plaster."

"With respect to the second point, it appears that in this case the inflammation proceeded in so insidious a manner," (*insidious* enough, God knows, for it was carried on under cover of an eighteen-tailed bandage,) "and was attended with so few of the *usual symptoms*," (good God! did not the patient complain of pain? was not his knee tender and hot, and did not the inflammation terminate in suppuration the day after the bandage was removed, and are these not "usual symptoms?"!!!) "that no one would have been led to suspect the existence of it to any considerable extent," (unless he knew something of disease,) "until its effects were rendered manifest by the formation of an abscess," (the day after the bandage was removed.)

The Weekly Board proceeds to inform us, that it was not the eighteen-tailed bandage that gave the patient pain, and "rendered the symptoms of inflammation obscure;" *but, forsooth, "the copious loss of blood which immediately followed the accident"!!*

Mr. Pitman, the House Surgeon, swore that he tied the branch of an artery with a ligature on the Wednesday, and put on a bandage, which caused the patient to complain of pain for three or four days. On the Saturday, according to Mr. Jeffreys, the wound had united, and thus a foreign body (the ligature) must have been buried in a part rendered doubly susceptible to inflammation by the tight bandage which covered it. Indeed, when we consider how much of irritation the foreign body thus introduced must have kept up, how much the veins below the bandage must have been gorged with blood, and how little the arteries could perform their offices, it seems impossible that nature could have thrown off the lead in any other way than by setting up the inflammatory process, which, had the bandage been continued, would have run into gangrene; but, being removed, terminated in an equally fatal suppuration. The Weekly Board informs us, that "the investigation was instituted, not only with the most perfect concurrence of Mr. Jeffreys, but in consequence of an application, for that purpose, made expressly by himself." Of this we have no doubt; such friendly commissions of inquiry are much in vogue, and frequently succeed; but, in the present instance, we suspect the parties have carried the joke rather too far, inasmuch, as by publishing a garbled statement of their proceedings, they have exposed themselves to the ordeal of criticism; which, for various reasons, they are ill able to withstand.

With respect to the last assertion of the Weekly Board, that Mr. Bailey gave a hundred pounds to the building fund, "in consideration of the result of this investigation," we can only say, that it is of a-piece with most other statements contained in the pamphlet, and that it is an impudent and palpable falsehood. We shall not waste our time on the persons who first put forth such statements, nor on the hireling journalist who published them to his little *coterie* of readers; but content ourselves with inserting Mr. Bailey's disclaimer of having given his money because he was satisfied with the result of the inquiry into the treatment of his servant.

"*To the Editor of* THE LANCET.

Berkeley-square, Nov. 10, 1825.

SIR,—In reply to your letter of yesterday, I beg to state, in the most *positive* and *unequivocal* terms,

1st. *That I did* NOT present the Hospital with 100*l.* in "consequence of the *result* of the investigation."

2ndly. That your report of the *qualified* manner in which I gave the money is as nearly correct as possible.

3rdly. That the inquiry at the Hospital board did not, in the slightest degree, alter my opinion as to the propriety of

the verdict given by the jury,* inasmuch as there was no evidence adduced to refute that which had been already given; and,

4thly. That my only motive in presenting the Hospital with 100*l.* was to convince the Governors, and the public, that I had not, as it had been maliciously insinuated, brought forward the inquiry for the purpose of injuring an institution of so excellent a nature, or with a view of casting odium on its medical officers.

I am, Sir,
Your obedient servant,
J. Bailey."

Mr. Bailey's conduct, in this affair, was humane, liberal, and gentlemanly, not savouring of acerbity on the one hand, nor of too much quietism on the other. To the course he took, we are persuaded he was impelled by the purest and most benevolent motives, of which all parties seem to be agreed.

The second resolution of the Weekly Board, which conveys to Mr. Jeffreys "their fullest approbation of his conduct during the whole period in which he has acted as surgeon to the hospital," their "high sense of his skill," &c. &c. is an admirable piece of satire upon its unconscious authors. Having investigated the case of *Hammond*, they return Mr. Jeffreys their thanks; as also for his care of *Wheeler*, who died from the tight bandage, &c., whose case they *had not* investigated; by which we can understand the value of "their approbation," and how very easily it may be had.

Having shown, in a former Number, that the surgeons of St. George's Hospital are virtually elected by Sir Everard Home, it will not be difficult to believe that the same interest which can give office to an individual, can also continue him in it *per fas et per nefas*, through evil report and through good report, or procure him the thanks of the Weekly Board as easily without investigation as after it.

* Verdict—Died from the effects of a cut in the knee, in consequence of not receiving proper surgical treatment after he entered the Hospital.—Ed.

The principal charges of neglect and ill treatment were, we maintain, fully proved; and we trust the Governors of St. George's will, by deposing the medical oligarchy which has too long revelled in that institution, and, by a more vigilant attention to its affairs, show that they commiserate the fate of Hammond, and that they are determined in future to think and act for themselves.

The next cases in which complaints have been made, were those of Nicholas Dawkins and Daniel Taylor, who died in St. George's Hospital. Upon these we must be brief.

The first man, Nicholas Dawkins, a police officer, was carried to the hospital 24th May, 1825, with a compound fracture of the right leg. "The injury which this poor man had sustained was, from the first, of a most serious and alarming character. Erysipelas and large abscesses followed, accompanied with profuse discharge and hectic fever." He died August 11th.

It was asserted by some that the limb "ought to have been amputated as soon as erysipelas began;" but that certainly would have been bad practice. Whether it should have been amputated in the first instance is another question. It was stated by one of the witnesses examined at the inquest, "that his sheets had been filthy, *and that mushrooms actually grew on his bed;*" which the Weekly Board meets by the following reply:—"Upon one occasion," say they, "when dressing the fractured limb, Mr. Jeffreys observed a *small fungus on the pillow*, to which he directed the attention both of the patient and of the pupils, and which had evidently *adhered to the pillow when placed in the garden to dry.*"

If the pillow had been mangled or ironed we do not see how this fungus (*supposing* it to have been derived from

the garden) could have so obstinately adhered to the pillow. We are afraid, this explanation of the "Weekly Board" is not very satisfactory.

It was further stated, that a profusion of maggots existed in the bed of the deceased. To this charge the Weekly Board rejoins,

"It is needless to dwell on this subject, as those who have observed the impossibility of preventing *the ova of flies from* being deposited on every animal substance, and the rapidity with which, in sultry seasons, those *pass into the state of maggots*, will not by any means wonder, if a few had been occasionally met with in the pillows and dressings of a bad compound fracture."*

We never supposed it was impossible to prevent maggots from being formedon the bed clothes of a patient, under the circumstances of Nicholas Dawkins.

We have only room for another extract.

Speaking of accidents to the lower extremities, the Board says:—

"*Where these proceed unfavourably, the discharge is so profuse, that perfect cleanliness cannot possibly be preserved.* That degree of it alone is to be sought for, which is compatible with the safety of the patient, to whom the *utmost quiet is so essential, that a frequent change of bedding would be both painful and injurious.*"

In spite of this, if we are to believe the nurses, Hammond's sheet was changed almost every day!

The last case is that of Daniel Taylor, who quitted the Hospital without leave, as some say, because he was ill-treated by a nurse and patient, and ordered to carry coals, respecting which, however, there is much contradictory evidence. Several letters, it appears, passed between Mr. Higgs, the Deputy Coroner, and a person styling himself Joseph Gunning, *Esq.*, (who we believe is the Clerk to the Hospital,) on the subject of this man's case, in which we perceive nothing particularly worthy of notice.

The Board concludes by observing, that "the reputation of St. George's Hospital stands high with those for whose benefit it is instituted"—which would seem to imply that Messrs. Sir Everard Home, Brodie and Co., have the charity to thank God for the benefits the Institution affords them, and are satisfied with the good things they enjoy.

* Vile as the composition of this pamphlet is, it is evidently from the pen of some medical man or men; "*passing into the state of* maggots" is a piece of jargon smelling too strong of the shop to be mistaken. Perhaps Mr. Brodie had a hand in the business.

ABUSES IN THE COLLEGE OF SURGEONS.

"Human creatures court the sympathy of each other in their disgrace as in their success, in their despair as in their *hope*; and it is so with these *old* men, who feel themselves unpleasantly situated."—Page 12 of a Letter in refutation of the aspersions cast upon the Court of Assistants of the College of Surgeons, by a Physician, in a late address.

To the Editor of THE LANCET.

SIR,—The intense vulgarity of the miserable pamphlet from which the above extract is made, (admirably applicable to the legislators of the College of Surgeons at the present moment,) forms a strong evidence of how little of talent, of education, and consequently of rank, can be employed to stand forward in defence of a body, who by their folly have forfeited the respect and esteem of every disinterested member of the profession. Gross scurrility and vapid declamation are the weapons resorted to in a bad cause, and make a pitiable display when brought to bear against such eloquence and such arguments as are found in the address of Doctor Armstrong. Personalities also excite no other feelings in honourable minds, than those of utter contempt for the weak fool who, for lack of wit, indulges in them. But they are double-edged tools, with which an aggressor wounds himself more deeply than his victim, thus this letter-writer, when he designates Doctor Armstrong a medical Hunt, has portrayed in himself a surgical Thistle-

wood—like that ruffian he would sacrifice the innocent with those he supposes guilty, and like that assassin he would stab them in the dark. His malignity evinces an utter want of the common feelings of humanity, when he attacks the grey hairs of the aged and unoffending Brookes, and the meanness of his cowardice may be appreciated, when, with the blackguardism of Smithfield, he insinuates the grossest calumnies against Messrs. Grainger, Sleigh, &c., persons totally unconnected with the subject at issue, and hides himself from their just indignation by publishing his letter without a name.

While reading the first few pages of this wretched production, I began to suspect that it was written by one of Dr. Armstrong's protegés, who took this sly mode of repaying the Doctor for the liberal puffs with which he has introduced them to our notice; for this wight of an author has absolutely republished the Doctor's pamphlet, and redoubled its effect by extracting the most forcible passages, and further by way of serving these up in the strongest light, he accompanies each with some vapid and driveling nonsense of his own, in admirable illustration of the caricature of contrasts—full price—half price—high price—and low price. However, towards the conclusion of the letter, like the Ass in the Lion's Skin, the *squire* shows himself by his ears to be some embryo councilman, who wishes to recommend himself to the "things that be in power." If so, it is to be hoped that he has insured his election by obtaining the signatures of the members of the Council to some document by which they bind themselves to elect him on arriving at the age of maturity, somewhat after the plan lately attempted to be adopted at St. Bartholomew's for the election of professors. This embryo councilman lauds most vehemently the monopolising bye-law of the Court of Examiners, whose object in passing it was (he states) to insure competency on the part of teachers. I refer you, Sir, to Doctor A.'s pamphlet for incontrovertible arguments to prove the inefficiency of such a measure. His ideas of the value of lectures were undoubtedly *secreted* in the city, and are powerfully demonstrative of the utility of combining commerce with science; for, according to his *calculations*, the best lecture-*shops* are those where the largest fees are extorted.

Now if we admit this sterling argument, Dublin must be a bad shop, Edinburgh worse, and Paris worst of all. Indeed, in the latter market, articles of science must be of extreme bad quality, and worth nothing when such "Marchand's des Sciences" as Cuvier, Blainville, Dupuytren et Compagnie dispose of their merchandise gratuitously. By a similar computation, he measures an individual's capability of teaching, by his age; the plain inference of which is, that as the united ages of the Members of the Court of Examiners amount to 735 years, their shops must be absolute emporia of knowledge. Happily, Sir Astley Cooper seems not to have been influenced by those ideas, when he erected the new school at Guy's, where the oldest professor has scarcely completed his 30th year, and yet each of them has fully proved his competency to fulfil the task assigned him. The pitiful attempt to show the necessity of a person passing through the subordinate offices of dissector and demonstrator, before he be capable *of* teaching, had for its sole object the puffing of Messrs. Stanley and Shaw. That their works and names are known abroad is a fact quite novel, and irresistibly ludicrous. A single leaf of these "Manuals of bad English and worse anatomy" could never have crossed the channel, except as the envelope of some Apothecary's clyster-bag and syringe. The name of one, I will admit, is heard of on the continent; for we are told by the *guide*, at the field of Waterloo, that the big boxing life-guardsman, Shaw, made horrible execution amongst the *Mounseers* during the battle. In the crooked obliquity of his mind, the Embryo-Councilman has concealed an important fact as regards the above subject; viz. that the offices of dissector and demonstrator are conferred by the Lecturers, not on the most meritorious and deserving students, but on their own sons, nephews, brothers-in-law, and nephews in law. Now until it be proved to us that, like the aristocrats of England, who have thicker blood in their veins than ordinary bipeds, the surgeons of hospitals possess extraordinarily developed organs, (that of destructiveness is included of course,) we cannot admit that they or their relatives are endowed with the exclusive power of generating anatomists, even though the case of Mr. Abernethy be urged against us, who begot a professor "ready cut and dry," at least in his own estimation, and that of the weak tool who aided him in a detestable job, by which it was attempted to exclude a Lawrence from the Professor's chair of St. Bartholomew's. This filthy production terminates with the *glorification* of the Members of the Court of Examiners, but in the enumeration of their *illustrious* names, that of Mr. Thompson Forster is omitted; surely that eminent surgeon is as fully entitled to his *mite* of

the garden) could have so obstinately adhered to the pillow. We are afraid, this explanation of the "Weekly Board" is not very satisfactory.

It was further stated, that a profusion of maggots existed in the bed of the deceased. To this charge the Weekly Board rejoins,

"It is needless to dwell on this subject, as those who have observed the impossibility of preventing *the ova of flies from* being deposited on every animal substance, and the rapidity with which, in sultry seasons, those *pass into the state of maggots*, will not by any means wonder, if a few had been occasionally met with in the pillows and dressings of a bad compound fracture."*

We never supposed it was impossible to prevent maggots from being formedon the bed clothes of a patient, under the circumstances of Nicholas Dawkins.

We have only room for another extract.

Speaking of accidents to the lower extremities, the Board says:—

"*Where these proceed unfavourably, the discharge is so profuse, that perfect cleanliness cannot possibly be preserved.* That degree of it alone is to be sought for, which is compatible with the safety of the patient, to whom the *utmost quiet is so essential, that a frequent change of bedding would be both painful and injurious.*"

In spite of this, if we are to believe the nurses, Hammond's sheet was changed almost every day!

The last case is that of Daniel Taylor, who quitted the Hospital without leave, as some say, because he was ill-treated by a nurse and patient, and ordered to carry coals, respecting which, however, there is much contradictory evidence. Several letters, it appears, passed between Mr. Higgs, the Deputy Coroner, and a person styling himself Joseph Gunning, *Esq.*, (who we believe is the Clerk to the Hospital,) on the subject of this man's case, in which we perceive nothing particularly worthy of notice.

The Board concludes by observing, that "the reputation of St. George's Hospital stands high with those for whose benefit it is instituted"—which would seem to imply that Messrs. Sir Everard Home, Brodie and Co., have the charity to thank God for the benefits the Institution affords them, and are satisfied with the good things they enjoy.

* Vile as the composition of this pamphlet is, it is evidently from the pen of some medical man or men; "*passing into the state of* maggots" is a piece of jargon smelling too strong of the shop to be mistaken. Perhaps Mr. Brodie had a hand in the business.

ABUSES IN THE COLLEGE OF SURGEONS.

"Human creatures court the sympathy of each other in their disgrace as in their success, in their despair as in their *hope*; and it is so with these *old* men, who feel themselves unpleasantly situated."—Page 12 of a Letter in refutation of the aspersions cast upon the Court of Assistants of the College of Surgeons, by a Physician, in a late address.

To the Editor of THE LANCET.

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puff as his *equally enlightened* brethren, Messrs. Lynn, Norris, Dundas, and Blizard. The names of Lawrence and Brodie are introduced; but, possibly, the writer is not aware that these gentlemen, together with Messrs. Wardrop, Earle, and, indeed, every surgeon in London distinguished for either talents, learning, or liberality, have expressed the utmost indignation and disgust at the conduct of the Court of Examiners. The Embryo-Councilman is wonderfully felicitous in proclaiming that great improvements are in contemplation at the college; but he omits telling us in what year of our Lord we are to expect them. He informs us what very few surgeons in London are aware of, viz. that the College has a library; so has the Grand Turk at Constantinople; but nobody is ever admitted to make use of it. We are told that the College has taken into its keeping the Hunterian Museum.—We admit it has, and further, into very close *keeping*, for it is shut up eight months in the year; and if a visitor is so fortunate as to obtain admittance, he is forbidden to take a note of its contents. The son of the distinguished Professor Thompson of Edinburgh was refused this privilege by one of the curators. We have *half a dozen* lectures there, no doubt, on the comprehensive subject of Comparative Anatomy; and when they are being delivered, it is equally true that the benches of the Theatre are crowded to suffocation by such members of the College as submit to the degradation of entering by a back door, while the precious monopolists make their entré by the grand portal of Lincoln's-Inn-Fields, and occupy the body of the Theatre perfectly at their ease, and secure from the contact of what these benighted buzzards term the Democracy of Surgery. Foreigners (*when admitted*) visit not the College of Surgeons, but the museum entombed there of a man who, during his life, was excluded from the Court of Examiners by that corporate illiberality and narrow-mindedness which have descended, with increased intensity, to the present members.

HONESTAS.

ABUSES IN THE COLLEGE OF SURGEONS.

To the Editor of THE LANCET.

SIR,—The period, I trust, is not far distant, when the College which has hitherto trampled upon the rights and privileges of the profession, will experience the instability of human greatness when founded upon principles at variance with justice and equity. The same worthy motives that have led the Examiners to secure for themselves that profitable establishment in Lincoln's-inn-fields, as well as monopolizing every other advantage from professional exertion, would, no doubt, operate on the minds of the Examiners, at some future period, to exclude, by an examination, such as are likely to interfere with their interest in practice as well as theory.

The manner in which you have discharged your duty to the public, by exhibiting these gentlemen in their official capacity, as well as the course to be adopted for the removal of an evil so injurious to the progress of science, entitles you, Sir, to the thanks of every independent member of the profession of surgery. It is manifest, that the sentiments contained in Dr. Armstrong's Letter have been before expressed in THE LANCET. Dr. A. is nevertheless an able auxiliary, and the circumstance of his not being a surgeon ought not, I conceive, to prejudice the profession against his exertions, as the distinction between a good surgeon and a physician is so trivial as to be unworthy of the arguments lavished upon it. It is, I presume, a duty incumbent on every individual, whether surgeon or physician, to resist, to the utmost of his power, proceedings which have a tendency not only to paralyse every endeavour to promote the interests of science, but to invade the liberty of the subject. That such must be the ultimate effect of the proceedings of the College no one can deny. Is it, therefore, consistent with the honour of the profession tamely to submit to regulations without redress in principle and effect, only calculated to aggrandize ten individuals and their families. Whoever will peruse the statement drawn up by Dr. Armstrong (the greater part of which appeared in THE LANCET twelve months ago) without a feeling of determination to oppose to the utmost of his ability an aggravation so unjust and unreasonable, deserves to wear the chains of slavery and oppression so deliberately fixed upon them by gentlemen, however respectable in private life, who have justly forfeited the claim to forbearance, either on the plea of age or avarice.

I am, Sir,
Yours truly,
H. M

MUSEUM AT ST. THOMAS'S HOSPITAL.

We lay the following correspondence before our readers, abstaining from such comments as it may appear to call for. The language of Mr. J. H. Green's note seems to be studiously ambiguous, and those persons who take any interest in his vindication, must judge for themselves whether the defence is a fabrication, as well as the note which accompanied it:—

Mr. J. H. GREEN *to the Editor of* THE LANCET.

Mr. J. H. Green begs leave to state, for the information of the Editor and Readers of THE LANCET, that the letter, signed J. H. G., and dated Lincoln's Inn Fields, which appeared in the last Number of THE LANCET, was not written by him, nor the paper which accompanied it sent by him; and that he is wholly ignorant by whom the former was written, or the latter sent.

Lincoln's Inn Fields,
Nov. 7, 1825.

The Editor of THE LANCET *to Mr.* J. H. GREEN.

The Editor of THE LANCET begs leave to inquire, whether a note left at his office this morning, disavowing a communication signed J. H. G. which appeared in THE LANCET of Saturday, is actually written by Mr. J. H. Green.—The Editor is more especially at a loss to determine which is the genuine communication, as there is no material difference in the hand-writing of the two notes, and, as the note dated this day was presented at the office, in the first instance, in a way which seemed to throw some doubt upon its authenticity.*

Should the communication of this morning prove to be from Mr. J. H. Green, it will, of course, be inserted in the next number of THE LANCET.

London, 7th Nov. 1825.

Mr. J. H. GREEN *to the Editor of* THE LANCET.

Mr. J. H. Green begs to authenticate his communication of this morning by inclosing the note of the Editor of THE LANCET, and by repeating the genuine communication.

Lincoln's Inn Fields,
Nov. 7, 1825.

Since the above correspondence took place, Mr. Aston Key and Mr. Bransby Cooper have authorized us to state, that they will forward a *refutation* of Mr. J. H. Green's *reply*, for insertion in our ensuing Number.

DR. GORDON SMITH AND THE LANCET.

Dr. Gordon Smith presents his compliments to the Editor of THE LANCET, and, presuming that it must be that Gentleman's wish to give his readers correct information, begs to acquaint him, that his allegation, respecting the authorship of a paper which appeared some time ago in "The London Medical Repositoty," is utterly unfounded. Dr. Smith neither wrote the paper in question, nor was in any way acquainted with its existence, until, in common with other readers of the Journal, he saw it in print.

He requests the Editor will do him the justice to rectify this misrepresentation in the next number of THE LANCET.

It may not be of much consequence to add, that Dr. Smith highly disapproved of the said paper; but as it was written by a Gentleman enjoying the patronage of THE LANCET, it might not be agreeable should he, in his own defence, be compelled to name him.

London, Nov. 8, 1825.

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* Mr. J. H. Green's note was, in the first instance, brought to our office *on an open slip of paper*; but as our Clerk informed the bearer that in that shape it could only be received as an Advertisement on the Wrapper, it was taken back, and subsequently addressed to the Editor in an envelope.

HOSPITAL REPORTS.

GUY'S HOSPITAL.

Case of Traumatic Tetanus, which proved fatal in Thirty Hours.

S. Nichols, a pale unhealthy-looking youth, of about 17 years of age, was brought to the Hospital, on Monday, Oct. 17th, with severe injuries, occasioned by some machinery. The left humerus was ascertained to be fractured immediately below the point of insertion of the deltoid muscle; there was considerable contusion of the soft parts; and the under portion of bone was so nearly forced through the integuments, that a slight additional force would have rendered it a compound fracture. There was a jagged transverse wound, of about three inches in extent, on the left heel; it was below the insertion of the tendo Achilles, and the bone was completely bared. There was a wound of a similar character, but of much less extent, on the opposite heel. The jagged and irregular appearance of the wounds arose from their having been inflicted by means of the teeth of a circular saw.

In addition to the fractured humerus and wound on each heel, there were contusions in various parts of the body.

It was remarked that the patient was restless and fidgetty from the time of admission; and it became a matter of complaint, that he would not keep the splints on his arm. The nature of the wounds was such as did not admit of their union by the adhesive process; poultices were applied, and suppuration of a healthy character ensued.

On the evening of the 24th, which was a week from the date of the patient's admission into the Hospital, he complained of a sense of stiffness at the back of the neck; but as he had received contusions on this part, the stiffness was imputed to that cause. Mr. Morgan, however, who was in attendance at the Hospital for Mr. B. Cooper, desired that the patient might be narrowly watched.

On visiting the patient the following day, at 10 a. m., we found him labouring under symptoms of tetanus, in a violent degree. The jaws were so firmly closed, as to admit only with difficulty the tongue to be protruded. The abdominal muscles felt rigid and tense, there was a slight bending of the trunk and head backward, and all the muscles of the body were preternaturally rigid. Deglutition was accomplished with much difficulty, the attempt inducing a painful spasmodic contraction of the muscles about the throat; the pulse was sharp, quick, and varying with the slightest exertion—the average number of beats 136. The skin was moist and of a moderate degree of warmth, the tongue was moist, whitish in the centre and clean at the edges. There was an expression of anxiety in the countenance, amounting even to agony, filling the mind of the spectator with an apprehension and consciousness of a fatal result. It baffles all description, but in itself spoke volumes. The eye-balls were rolling to and fro, the iris of each eye was considerably dilated, still the functions of the sensorium were perfect. The patient complained of pain at the scrobiculus cordis, passing from this point backward to the spine. There did not appear to be any distinct paroxysms of spasm, the universal rigidity of muscular fibre was permanent, and it was only the attempts at deglutition that caused increased contraction.

About noon the patient was seen by Dr. Bright, and in consultation it was determined upon to adopt what they are pleased to call the "*stimulating plan*,"* which was as follows:

Musk, one scruple,
Æther, half a drachm,
Julep of ammonia, one and a half ounce;

to be taken every three hours.

An enema composed of the following ingredients to be administered immediately. (The bowels had been well evacuated yesterday.)

Castor oil, one ounce,
Oil of turpentine, one ounce.

A mustard poultice to be applied to the pit of the stomach, and the wound on the left heel to be dressed with lint dipped in oil of turpentine. About nine o'clock in the evening, (after the delivery of the Surgical Lecture,) the patient was visited by Sir A. Cooper. The pulse was *innumerably rapid*, the eyes were glossy, the skin cool, and covered with a clammy

* The *stimulating* plan as applied to the treatment of tetanus, was that pursued by Dr. Rush, who administered wine and brandy to the fullest extent. These are *certain* stimulants—unlike musk and other medicines. The exhibition of a few grains of musk does not constitute the "stimulating plan," therefore to say that it was adopted and failed in this case, is erroneous. We like to see things called by their right names. Dr. Bright's half measures may be called *cinet vruetice*.

sweat. The muscles of the abdomen and of the extremities retained their rigid feel, and the jaw was still more closely locked. Respiration was hurried and short, in proportion to the rapidity of the pulse, and the attempts at deglutition equally distressing and painful. The patient had taken four times of the musk, and had had two turpentine injections. Sir A. Cooper remarked, that it was too evident the patient could not survive many hours. Had he seen the patient at an earlier stage, he would have strongly recommended the trial of an *injection of morphine into the veins*. Sir Astley wished large doses of laudanum to be exhibited in glysters; two drachms were ordered to be given immediately in gruel, and to be repeated every fifteen minutes. Two ounces of laudanum were thus administered, but produced not the least visible effect. The symptoms continued uncontrolled and unabated, until death closed the scene of suffering about two o'clock in the morning. We omitted to remark, that several ounces of wine were given to the patient in the evening.

Post-mortem Examination.

This part of the report might be dismissed at once, by observing, that the body was examined, and that nothing was discovered which could tend to throw any light on the pathology of tetanus; but as an accurate and careful inspection of the body took place, we shall speak of the parts separately.

The membranes of the brain, and the substance of the brain throughout its whole extent, were perfectly healthy and natural in appearance.* The lungs and heart were healthy; the right auricle was filled with dark blood, firmly coagulated, as were also all the large veins; the subclavian, jugular, and bronchial. The abdominal viscera were all healthy, with the exception of the stomach; the internal membrane of which, especially at the cardiac portion, presented the appearance of acute inflammation having prevailed.

Mr. Swan, of Lincoln, we believe, has observed, in several cases of tetanus which he has attentively examined, that the ganglia of the sympathetic nerve were highly vascular, and therefore, in the present case, these parts were examined. The first and second cervical ganglia of each side, the thoracic, semilunar, and cœliac ganglia, were found to be of a pale and natural colour; not the least evidence of increased vascularity. The nerves leading down to the wound were carefully dissected, but there was no increased vascularity observed in their appearance. Lastly, the spinal marrow was removed, and here again was no evidence of inflammation or disease.

Whilst on the subject of tetanus, we may relate an anecdote which Sir A. Cooper gave to the class a few days since. Dr. Wells, physician of St. Thomas's Hospital, a few years ago, had been repeatedly disappointed and frustrated in his treatment of tetanus, he adopted a variety of measures, all of which proved unsuccessful, and at length a patient being brought into the Hospital with tetanus, Dr. Wells said to the pupils, "We will give no medicine in this case, let us see what the unassisted efforts of nature will accomplish." The patient got well.

* Mr. Key, in examining the brains of two hydrophobic patients, has discovered in each an unnatural appearance of the optic thalami. In the present case of tetanus, Mr. Key examined the thalami attentively, and at length discovered *that the vessels ramifying over one thalamus were full, whilst, on the opposite side, they were empty!* We mention this *important* fact, because it shows the accuracy of Mr. Key's observation; and as Descartes arrived at the conclusion of the pineal gland being the seat of the soul, so will Mr. Key, by a similar process of reasoning, prove the optic thalamus to be the seat of hydrophobia and tetanus.

ST. THOMAS'S HOSPITAL.

Case of Extensive Phagedenic Ulceration.

Elizabeth Thompson, 21 years of age, of leucophlegmatic habit, and a woman of the town, was admitted into Magdalen's Ward, on Thursday, Sept. 3d, under the care of Mr. Green, with a sloughy, ill-conditioned looking ulcer on the mons veneris. The patient stated that the ulcer had existed three months; that she had had bubo, and had taken a considerable quantity of mercury. But little was done until Tuesday, October 4th. The ulcer was now of the size of the palm of the hand, upon the mons veneris, and extending to the upper part of the labia pudendi. The sore formed a large segment of a circle, with a sharp, elevated, regular and well-defined edge; the inner surface of the ulcer was filled with dirty-yellow ragged-looking sloughs. There was a considerable extent of dark-coloured inflammation surrounding the ulcer; and the patient complained of much pain and irritation in the part. The constitution sympathised with this state of the parts;

the pulse was quick and hard; the patient was restless and thirsty. She was evidently much worse since her admission, and the ulcer had considerably extended. It was ascertained from her friends that the unfortunate wretch had been much accustomed to the pernicious habit of spirit drinking, to an amazing extent. Mr. Green directed her to be bled to the amount of twelve ounces, and to take the saline effervescing mixture. (The bowels had been previously well opened by the house medicine.) Linseed poultice, with poppy fomentation, to be applied to the ulcer.

Oct. 6th. The pain and irritation in the sore had been relieved by the venesection; but it was still pursuing its destructive course. Pulse very quick, and denoting irritation. The blood was not buffed, but it was firmly coagulated. The saline mixture was directed to be continued every four hours, with the addition of five minims of laudanum.

Oct. 7th. The sore increasing, edge less defined; the patient complains of much pain, and is very restless. The undiluted nitric acid was ordered to be applied to the ulcer, and to be repeated on the following day. One grain of opium to be taken at night.

Oct. 10th. The sloughs occasioned by the nitric acid, are separating; but there is no appearance of granulations. There is a broad line of dark-coloured inflammation extending into each groin. The constitutional symptoms continue. One grain of opium to be taken three times a day.

14th. No improvement either in constitutional or local symptoms. The acid was again applied to day, and she now uses, as a constant application, the nitric acid lotion, which is made by adding fifty drops of the strong acid to a pint of water.

20th. The sore is now of the size of a large hand, extending down the whole of the labia, which are, in fact, destroyed. The inner surface of the sore is very dark and sloughy; the acid has been applied once since the last report. The pulse is very quick, countenance anxious, and teeth somewhat covered with sordes; the tongue brown and dry in the centre, but clammy and moist at the edges. She was directed, yesterday, four ounces of gin to be taken daily, and one pint of porter with a mutton chop. She now takes one grain of opium every six hours.

22d. The destructive process of ulceration proceeds uncontrolled, and it is now truly an appalling sight. A foul unhealthy looking ulcer, occupying the entire lower part of the abdomen, of considerable depth, and even extending into the abdominal muscles. She was directed to take

Sulphate of quinine, 2 grains;
Capsicum, 3 grains, every six hours and to continue also the opium.

27th. Nature can no longer withstand the ravages which have been going on, and we find the poor woman to-day evidently sinking. We learn that she lingered on until the following evening. The nitric acid was applied five times to the ulcer, but it had no effect in checking the disease.

ST. BARTHOLOMEW'S HOSPITAL.

Emphysema.

William Willen, ætat. 7, was admitted into Rahere's Ward, under Mr. Vincent, on Monday October 16th, having been knocked down and run over by a hackney coach. Upon examination, two of the inferior ribs on the right side were found fractured, and their fractured ends having been pushed inward, through the intercostal muscles, pleura costalis and pulmonalis, into the substance of the lungs, the air had consequently escaped into the thorax, through the pleura and lacerated muscles, into the cellular tissue, on the outside of the chest; and thence diffused itself over the head, neck, shoulders and breast, so as to inflate the parts in a most extraordinary degree. The patient complained of a considerable tightness of the chest, with pain chiefly in the situation of the fracture; he had difficulty of breathing, which increased in proportion as the skin became elevated and tense; it was laborious as well as frequent. His inspiration was short and rapid, and ended with a kind of catch in the throat. When he spoke, his voice was similar to that of a ventriloquist; or indeed, more like to that of the far-famed Punch; it was small and sepulchral, and seemed to come from the abdomen. The countenance was red and swollen, the eye-lids nearly closed; the pulse, at first weak and contracted, afterwards became irregular. On placing the hand on the integuments, they had an elastic feel, together with crepitation similar to the noise from handling a dry bladder half filled with air. In addition to these symptoms he had cough—bringing up after many ineffectual efforts a frothy discharge, slightly tinctured with blood. Mr. Vincent was at the Hospital when the boy was brought in, and ordered him to be put to bed as soon as possible, and a bandage to be applied, but did not, in our hearing, order venesection. The child had been four hours in the Hospital,

labouring under extreme difficulty of breathing, when Mr. Stanley accidentally saw him, and directed immediately V. S. to ʒx.; the patient felt greatly relieved from the loss of blood, but during the night, as the pulse again became quick and difficulty of respiration returned, he was again bled to ʒviij. and an active aperient administered.

19th. Much relieved; but the emphysema being still considerable, he was bled again to-day to ʒx. and actively purged; complaining of pain in the abdomen, 12 leeches were applied.

20th. To-day is much better; the emphysema is greatly diminished. From this time the boy has done well, and will shortly be discharged.

This case has been attended with a very different result from the one last admitted into the Hospital, and in which puncture was considered of such *vital* consequence.

MIDDLESEX HOSPITAL.

Operation of Lithotomy which proved fatal from Hæmorrhage.

John Fletcher, æt. 57, a robust healthy looking countryman, was admitted into the Hospital August 2nd, under the care of Mr. John Shaw and Mr. Joberns. *Palliative remedies were administered during a period of eight weeks*, that is until the 29th of September, on which day the *fatal* operation was performed. We visited the patient frequently previous to the operation, and he as often complained of his state of extreme suffering; day after day did the poor man reiterate his complaints, and beg that he might be relieved by an operation. But Mr. Shaw had *reasons* for allowing the man to continue in this state of suffering, which we shall presently explain.

The operation was performed in the following manner, on Friday Sept. 29th. Mr. Shaw introduced his finger into the rectum, and made his incision in the perinæum with a scalpel; the point of the scalpel was placed in the groove of the staff and carried on. Whilst cutting through the prostate gland, there was a profuse gush of blood, which appeared to be principally arterial. Mr. Shaw afterwards used a curved bistoury to enlarge the opening in the bladder. The forceps were passed into the bladder, and two small flattened calculi were readily extracted, of an oval shape.

It appeared to us that upwards of three pints of blood were lost during the operation. The patient was put to bed, and the hæmorrhage continued. Cold wet cloths were applied over the thighs and abdomen. Mr. Shaw attempted to discover the bleeding vessel, but could not; and *he says* that pressure upon the internal pudic artery did not restrain the hæmorrhage. During several hours the bleeding continued profusely, but towards the evening it abated; the patient was now greatly exhausted, and the loss of vital fluid had been so great, that it was apparent that death must ensue. There were spasmodic twitchings and great restlessness; pain in the abdomen, with pallid collapsed features, and cold extremities. The poor man died about 11 o'clock, being a lapse of ten hours from the performance of the operation. Some brandy was administered at intervals during the evening.

The body was examined by Mr. John Shaw, and the arteries injected. The injected preparation was shown to the pupils on the following morning. Mr. Shaw informed the *young gentlemen*, that there was an *irregular distribution* of the arteries, and that one of the branches of the internal pudic artery, (the artery of the bulb,) was given off very high up, and that it crossed over the neck of the bladder, *so that it was impossible to avoid cutting it.—Fudge!* The artery which had been divided appeared, to our *mortal* eyes, to be the *internal pudic*; but the manœuvre of privately examining the body, and bringing up an injected preparation, prevented us from being fully satisfied on this point. We must, however, explicitly state, that we do not believe one word of Mr. John Shaw's explanation.

In performing the operation of lithotomy, there are only two vessels of consequence which can be wounded, or from which any danger from hæmorrhage can result, these are the artery of the bulb, and the internal pudic artery. (The internal iliac might be wounded by Joe Burns.) Every body knows, or, at least, every body ought to know, (because it has been advertised and puffed in every journal of the kingdom,) that Mr. John Shaw has written a Manual of Anatomy, in which work he has been pleased to be somewhat critical upon the operation of lithotomy. Mr. Shaw's observations are, of course, purely speculative, because we have reason to believe that he had never performed the operation on the living subject, until he operated on the poor man whose case we have just given. But as Mr. Shaw has taken considerable pains to "write himself down an ass," out of his own mouth we will judge him.

"*The artery of the bulb ought never to be cut*, it is too high up." (Page 123, of the Manual of Anatomy, by J. Shaw.) Again, "When we examine the manner in which the *internal pudic artery* is bound by strong fascia to the ramus ischii, it is evident no *surgeon* will be in danger of wounding it, if he perform the operation *carefully*."—"The bleeding which takes place in an operation that has been *well performed*, will be principally from the large veins which surround the prostate and neck of the bladder."

Mr. Shaw has left no saving clause about irregular distribution of arteries, nay, so confident was he on the subject of lithotomy, that he wrote a paper in the Journal of Foreign Medicine, in which he stated, that "he thought the fears which were entertained by some surgeons from hæmorrhage, were *groundless*, and that the patients died from other causes." In the Manual of Anatomy, however, Mr. Shaw acknowledges that he has seen a case in which death ensued from hæmorrhage; but then, he says, the operation was *not* properly performed. Of course it never entered into Mr. Shaw's imagination, that fatal hæmorrhage could take place if an operation were properly performed, and in this opinion we perfectly coincide with Mr. Shaw.

Mr. Shaw may be a good anatomist, but his knowledge of practical surgery is about equivalent to that of Joe Burns. We should be glad to know where, indeed, Mr. Shaw can have derived his practical information. He came a *raw lad* from Ayrshire, and was put into Mr. Bell's Museum in order to make preparations; to which we recommend him to return, or otherwise attend to the spines of boarding-school ladies, for he seems to us not exactly the thing for a Hospital Surgeon.

There is one circumstance we cannot pass over, without indulging in severe animadversions upon it. This patient was kept in the Hospital upwards of eight weeks, suffering occasionally the most excruciating pain, for indeed, calculus in the bladder does occasion excruciating pain; the patient would not submit to so formidable an operation, if it were not to rid him of a tormenting malady. This poor man came into the Hospital seeking speedy relief, why then was he compelled to drag on eight weeks of a miserable existence, in pain and misery? Because, it has been reported, Mr. C. Bell was on a tour to the Highlands, and Mr. John Shaw *dare* not, or *would* not "flesh his maiden scalpel" in the absence of his "magnus Apollo."

OPHTHALMIC INFIRMARY.

William Fish, aged 2, was brought to the Infirmary December 19th, 1822. He had entirely lost the power of vision of the left eye, at the bottom of which was discovered a small button of coagulable lymph, about the size of a pea, projecting into the vitreous humour; and several small red blood vessels could be distinctly seen ramifying upon its surface. The pupil was dilated and motionless, and the iris was of a greenish colour. The right eye was perfectly well; his general health was good, and he was free from pain. The disease was supposed to be of a fungoid nature. Ordered,

Hirud. ij. oculo sinist. 3tia quaque nocte;
Hydrarg. cum cretâ, gr. v. *bis die;*
Magnes. carbon. ℈ *ß. v. n.*

23rd. To repeat the leeches, and take the medicine three times, instead of twice a-day.

Jan. 4th. The vessels on the diseased structure not so visible as when he was last brought. To continue the remedies.

20th. Two or three blood vessels only to be seen upon the lymph. Mouth not sore. To go on with the medicine; the leeches if necessary.

Feb. 1st. Slight ophthalmia; pupil irregular; mouth not sore.

Hydrarg. cum cretâ, gr. v.
Et Pulv. ipec. comp. gr. iv. *bis quotidie.*

6th. The globe now began to enlarge, and was extremely painful; palpebræ much swollen; inflammation of the conjunctiva and sclerotica. Pain of the head and febrile symptoms. Bowels not open.

Hydrarg. submur. gr. i.
Pulv. Rhei, ℈ss. *statim sumend.*
Magnesiæ sulphat. ℥ss.
Infusi rosæ, ℥viij., *a mixture:*

Three oz. to be taken in divided doses in the course of the day. A lotion of the sedative solution of opium and water to be kept constantly applied to the eye, by means of a linen rag. Leeches to be put on occasionally.

15th. Globe enlarges. Small doses of the hydr. cum cretâ were again had recourse to. The lotion was continued, and the leeches were applied when the pain was considerable. After a few days the inflammation suddenly disappeared; the pain entirely ceased; the humours of the eye became absorbed; the globe rapidly shrunk; and in the course of a few weeks only the tunics contracted into a small, hard, white mass which remained at the bottom of the orbit.

The child has since enjoyed good health.